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AMERICAN VETERINARY REVIEW

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AMERICAN VETERINARY REVIEW.

JUNE, 1908.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, April 15, 1908.

PROF. LAW RETIRES.—With this month of June an event of some importance will take place in the veterinary world of America.

Prof. J. Law, F.R.C.V.S., retires from the directorship of the New York State Veterinary College, and his place is to be filled by Prof. Veranus A. Moore, B.S., M.D., appointed by the Board of Trustees of Cornell University.

Both of these gentlemen are well known to all of us and their scientific attainments have shown how well deserved the position was for either. No doubt the profession will remember the work that Prof. Law has done and will watch that of Prof. Moore, calculating on what she can expect from him in judging by the good work he has already done.

Prof. Moore, B.S., M.D., becomes director of one of the first and one of the best veterinary colleges in America. He probably will keep the chair of Comparative Pathology, Bacteriology and Meat Inspection. For years he has worked in that direction. He has made his reputation by it. He is known all over the world for his researches in Comparative Pathology and Bacteriology.

But what about the chair left vacant by the retirement of Prof. Law, that of the Principles and Practice of Veterinary Medicine, Veterinary Sanitary Science and Parasitism? Prof.

Law, F.R.C.V.S., is a veterinarian, and, evidently, a graduate of veterinary medicine must be his successor. Who will he be? An American or some one from the continent? We certainly hope that an American veterinarian will be selected.

There is no doubt that Director Moore could be the right man for the place, as he has had much veterinary practice; he is well acquainted with the various requirements of the department left vacant by Law's retirement. Then—Of course! But even if as a B. S., M. D., the veterinary world will gladly accept him as a director of a veterinary school, will it be so if he takes the other chair? How much more satisfactory a title of Veterinarian, added to those that he has already, would be; that is, if he becomes Professor of Theory and Practice. In this case could not one of our schools grant him the degree and permit him to become for every one a true son of the great family of American veterinarians, as he is one of its brightest workers?

* * *

PASTEURELLOSIS.—The subject of Pasteurellosis is one which presents considerable interest and deserves the attention that bacteriologists have given to it. Among those, one of the principal, is Prof. Lignieres, the learned Director of the National Institute of Bacteriology at Buenos Ayres, to whom the scientific world owes so much on that question. In a recent number of the *Revista Veterinaria de Espana,* he has published an article resuming the opinion which he has taught since 1898, and from this, Mr. Panisset, in the *Semaine Veterinaire,* has made the following extracts, which resume the actual condition of the subject.

The author, recalling the excessive ubiquity of Pasteurellas, remarks that these microbes are found in the water, in the ground and on the mucous membranes of healthy animals. Under the influence of some favorable condition these microbes, then saprophite, become pathogeneous.

The action of Pasteurellas may not be recognized. The organism is slowly invaded, the latent infection acts as a favorizing

cause and promotes at a given date the realization of a secondary infection. This action of the Pasteurellas had not been brought in evidence before the important researches of Lignieres.

Pasteurellas may give rise to sudden severe and septicæmic infection as the old *hæmorrhagic septicæmia* or again may exist as true, pure cultures in the parenchymatous structures where they proliferate. Acting as occasional parasites, they become the agents of secondary infections which complicate some verminous diseases or other infections.

Pasteurellas and Pasteurellosis are met within every region of the world and in all animal species, arranged by Lignieres as follows: 1° Aviary P. (Cholera of fowls), 2° Bovine P., Hæmorrhagic septicæmia, *Rinderseuche,* Pneumo-enteritis, *Barbone* of buffaloes, septic pleuro-pneumonia. Diarrhœa of calves, *White scour Enteque.* 3° Ovine P., Enzootic pneumonia, *Lombriz,* infectious pneumonia of goats. 4° Pasteurellosis of wild animals or *Wildseuche.* 5° Pasteurellosis of swine or contagious pneumonia, pneumo-enteritis, *Swine plague, Swine fever, Schweineseuche, Schweisseptikæmia.* 6° Pasteurellosis of Equines, Typhoid fever, Influenza, Pneumo-enteritis, infectious pneumonia or *Brustseuche.* 7° Pasteurellosis of Carnivora, Dog distemper, Typhus of dogs or disease of Stuttgart; infectious pneumonia of lions and tigers. 8° Pasteurellosis of small rodentia, Septicæmia of hares and rabbits, Pneumonia of Beck.

* * *

On account of the number and of the varieties of complications that may accompany them, Pasteurellosis can be considered as the most dangerous disease of animals. And as many varieties of Pasteurellas can be made as there are species of animals. However exceptionally the same pasteurella may infect animals of a different species, as, for instance, the Aviary pasteurella may infect pig and rabbit or again that of bovines infect sheep. Lignieres insists very particularly on this point and on their importance for the obtention of serums and vaccines.

Already in 1899 Lignieres obtained from horses a polyvalent serum which was curative and preventive for the Pasteurellas, which had been used for immunization. On account of the difficulties that existed in the obtention of these serums and also because of the expense which render them of difficult use in veterinary practice, another method of vaccination was looked for, and in 1902 Lignieres made known the principle of his new method. The vaccines against Pasteurellas are cultures attenuated by age or by heat, in such a way that they give rise to a mild form of the disease, which is sufficient, however, to confer immunity against a natural infection. These vaccines are polyvalent, but only for each variety of Pasteurella. The production of polyvalent vaccines for all the Pasteurellas is possible, but has no economical advantages. For this reason, Lignieres recommends the use of serum which have a special polyvalency. Vaccines are exclusively preventive and must not be given to sick animals.

For a very long time it has not been possible to obtain antipasteurellic vaccines truly efficacious, but at present their preventive power has all the real value of the vaccines of Pasteur against bacteridian anthrax. The best results are obtained for the prevention of Pasteurellosis in acute forms; with chronic forms it is more difficult to immunize. Low-bred animals do not suffer by the vaccination, but improved breeds are much more sensitive to them. For them the sero-vaccination is better. This method consists in a simultaneous injection of antipasteurellic serum and vaccine, followed ten days later by another injection of vaccine. The vaccinations have to be renewed every year or at the very least every two or three years.

* * *

PHARYNGEAL PARALYSIS.—It is well understood that in horses any interference to deglutition will necessarily involve the expulsion through the nose of that which cannot pass down the œsophagus. But, if exception is made for the acute affections of the pharyngeal region, in which such manifestation is

observed, there are numerous cases where, says Prof. E. Zschokke, of Zurich, in the *Schweizer Archiv für Thierheilkunde,* it is very difficult during life to name precisely the nature of the obstacle preventing deglutition to take place, and to prove his assertions, he relates two cases which I have found in the *Revue Generale.*

In the first case—it was a mare of seven years—which since three weeks has great difficulty in swallowing. She had some discharge from the nose, has had no fever, and the throat is free from swelling. She has lost flesh, her temperature is normal. The discharge from the nose is thready, whitish and made up of saliva. All the other functions seem normal. The parotido-pharyngeal region is free from pain, nor is it swollen. Deglutition is absolutely impossible, and food, solid or liquid, as soon as taken in the mouth is rejected by the nostrils. The animal died with starvation eight days later.

At the post-mortem all the principal organs are found normal. The laryngeal, tracheal and bronchial mucous membrane is injected but not inflamed. Likewise is the pharyngeal in its lower part. The right guttural pouch is the seat of an abundant croupal exudate, more or less yellowish in color, and the surrounding tissues are infiltrated. The microscopic examination of the pseudo-membrane shows the presence of colonies of mycelium, of a kind of aspergillus which had probably entered by the nostrils, traveled to the guttural pouch, found there excellent conditions for its growth and proliferation and secreted a toxine which acted on the nervous threads of that region and thus promoted a pharyngeal paralysis.

* * *

The second case is also peculiar. A six-year-old mare cannot eat since two days. The throat and the œsophagus are free from pain and sewlling. The salivation is very abundant, but there is no cough nor any discharge from the nose. She takes water with avidity, swallows it and does not reject it. When oats or bran mashes are given to her, she masticates them with

relish, but cannot swallow them, and she rejects them immediately. If by force she is made to swallow, the muscles of the neck enter into violent contractions and the animal manifests great acute pain. Otherwise the mare is quite gay, her temperature is normal and all the great functions are regular.

On account of absence of pain in the throat and of the possible deglutition of liquids, the supposition of an obstacle to the function is left aside and alimentary drenches only are prescribed. For three days the condition remains the same, but then there appeared at the lower part of the left jugular region a soft, painless swelling which on pressure gave a peculiar crepitating sensation and which on percussion gave a tympanitic sound. Suspecting stenosis of œsophagus in the thoracic portion of the organ, œsophagotomy was going to be performed, when suddenly the temperature went up, intense dyspnæa was exhibited and extreme weakness. Fearing a rupture of the œsophagus the animal was immediately destroyed.

At the autopsy all the organs were found normal with the exception of the left thoracic cavity which was the seat of putrid pleurisy of recent origin. The œsophagus was normal in its cervical portion, but in the thoracic it was much dilated and contained a putrefying mass. The mucous membrane was entirely loose from the muscular, and between them was a greenish material, fetid in odor and made up of food in putrefaction. The muscular layer was infiltrated and on a level with the cross of the aorta it had a perforation large enough to introduce the finger. Without knowing the origin of these lacerations it is easy to understand how the complications of the thorax can have taken place.

And yet, if the second post-mortem does not explain the true cause of the difficulty in the deglutition, the first one illustrates very well that other causes than those of acute diseases of the throat may give rise to this serious complication and ought to be borne in mind.

* * *

COCAINIZATION OF THE PLANTAR NERVES FOR THE GENERAL DIAGNOSIS OF THE SEAT OF LAMENESS IN BOVINES.—Our readers have probably taken good notice of the remarks that I have written in relation to the use of cocaine in the differential diagnosis of lameness. I claimed the priority of the application for an American veterinarian, although I had to express my regrets for not being able to produce more scientific evidences of the results obtained in Ohio. At any rate I think the fact is now well established, notwithstanding what may be written, or unless stronger evidences are produced against the American claim.

In Italy, a veterinarian, Doctor Emilio Pesadori, has recently, in the *Clinica Veterinaria,* published a long article on the similar application which he has entitled, "Cocainization of the Plantar Nerves for the General Diagnosis of the Seat of Lameness in Bovines." Whether the method can find as many and delicate applications in bovines as when resorted to for solipeds, is a question which may not be considered in the same light by every one, and yet it cannot be ignored that in many instances, when in presence of a bovine, whose movements are so slow and heavy, presenting to him enormous muscular masses, principally around the upper articulations of their legs, the veterinarian shall be in great difficulty to make a precise diagnosis, no matter how careful his examination may be, or even how well marked objective symptoms may exist. Then, undoubtedly, the indication for resorting to the use of cocaine will present itself.

* * *

The correct anatomy of the distribution of the plantar nerves is therefore essential to know, and not being satisfied with that which he had found in the classical works, Doctor Emilio Pesadori has made many dissections, has located the exact position of the nerves in the anterior and posterior extremities, and has illustrated his article by plates of the plantar metacarpal and metatarsal nerves, and with them, has also shown the points where the injections are to be made, to be beneficial.

As may be seen in glancing at the rough figures that I send you, the author does not accept two injections to obtain satisfactory results. This is due to the peculiar distribution of the nervous branches. The Doctor recommends for either, the metacarpal or the metatarsal, three injections. On the metacarpus, injections shall be made at No. 1, plates 1, 2 and 3. On the

FIG 1.—Metacarpus and Metatarsus. Anterior Face.
1.—Injection on Metacarpus.
2.—Injection on Metatarsus.

FIG 2.—Metacarpus and Metatarsus. External Face.
1.—Injection on Metacarpus.
2.—Injection on Metatarsus.

FIG 3.—Metacarpus and Metatarsus. Internal Face.
1.—Injection on Metacarpus.
2.—Injection on Metatarsus.

metatarsal at No. 2 of plates 1, 2 and 3. The solution used is the same as that for equines, 15 centigrammes of muriate of cocaine in 5 grammes of distilled water for each injection. The syringe which he uses is somewhat stronger than the ordinary one, at least as far as the needle goes.

In conclusion, the author records three cases where the advantages of the use of cocaine are brought out by the correctness of the diagnosis obtained in each case.

It is certain that the method deserves attention and may find its application in bovine practice. Perhaps we may hear from some of our friends in that direction.

* * *

BIBLIOGRAPHY.—The house, W. R. Jenkins Co., has brought out lately a catalogue of some recent novelties it publishes and among them two works from one who is already well-known to the American veterinary readers, Doctor Kenelm Winslow, B.A.S., M.V., M.D. (Harvard). Of those two works I have received copies for reviewing. The first is the fifth edition, revised and enlarged, of "Veterinary Materia Medica and Therapeutics."

It seems but a very short time since the first edition of this book was presented to the American public and ever since the demand has been such that every edition has been disposed of before the publishers knew it. The fourth edition was issued but two years ago. Under such a condition it seems impossible at first to review a work which is represented so often and specially when its qualities have been so well considered in the successive issues, and it then would appear that what had been said could be repeated. But with Doctor Winslow there is one thing which always makes room for special attention. For instance, let us take a copy of each edition, the 4th and 5th. For the greater part of both books a perfect similarity will be observed until one reaches the end, when he will arrive at the part which makes the most important feature of the new book.

It is the substitution of a section on "Condensed Treatment of the Diseases of the Domestic Animals" to take the place of the "Index of Diseases and Remedial Measures," found in the 4th edition. The preparation of this new section has demanded much work on the part of the author and has permitted him to add 54 pages of good reading matter to his book, as every article

is brought up to most modern and progressive standard of veterinary therapeutics. This epitome covering the last 77 pages of "Materia Medica" gives general indications for all the forms of treatment of the most important diseases of our domestic animals and embraces medical as well as surgical therapeuty of all the various organisms. This is, I believe, an entirely new departure in works relating to veterinary materia medica and therapeutics. There is an excellent work in "Human Medicine," by Prof. S. O. L. Potter, where somewhat similar arrangements exist, but the subject covers a wider scope.

The addition of the epitome of Doctor Winslow is, no doubt, of great importance. It certainly adds to its value, and all the approval and marked appreciation that have already been shown for the previous editions of the book will have an opportunity to be repeated by all those who will read it. That is by all students of American veterinary colleges and also by every practitioner.

* * *

The second work due to the pen of Doctor Winslow is entitled "The Production and Handling of Clean Milk."

If one takes into consideration the importance that milk questions have of late assumed in scientific and sanitary circles, if he has taken notice of the many journals created that treat of milk, of the writings that find their way in all scientific publications, of the legislative measures that every country is taking, certainly the issue of a work like the one of Doctor Winslow will be found appropriate to the times and to the circumstances. Probably the first of its kind in America, the book is written by one who seems to be well prepared for it. Graduate in Agricultural Science, in Veterinary and Human Medicine, as the Doctor says in his preface, he has had, besides, the advantages of a large practical experience in the production and distribution of clean milk.

Clean milk a grand qualification, which not only means clean as far as its elements and composition go, but means also clean in its true sense, *free of all external impurities!*

To reach these qualifications some essential conditions are necessary to fulfill, and the education of those who handle this product is an important subject. Doctor Winslow's book is to provide "a working guide for those pursuing or wishing to pursue one of the most wholesome, worthy and laudable undertakings." In a work of 200 pages, with 47 illustrations and 15 plates, the subject is presented in nine chapters: "Germs in Their General Relation to Milk," "Composition of Milk and Cream and Their Products," "Milk Products," "Feeding for Milk," "Housing and Care of Cows," "Handling of Milk and Cream," "Cost of Producing and Distributing Clean Milk," "Some Hints Concerning Milk Distribution," "Milk Inspection." There is also an appendix with plans of barns, milk houses, etc., etc., and, finally, a general outline for the control, supervision and inspection of a city milk supply.

This handy treatise will prove of great and useful interest to the milk producer, to the veterinarian, to all those, in fact, who will realize the important necessity of securing the benefits of the application of sound hygienic and sanitary measures.

* * *

THE REPORT OF THE CHIEF OF THE BUREAU OF ANIMAL INDUSTRY for the fiscal year ending June, 1907, reached me a few days ago. It is concise and, of course, differs from the large volume we have been used to receive. But the reason is that it is only the general report and does not contain the other publications delivered during the year and which were quite numerous and issued separately.

In this last report are to be found the results of meat inspection under the new law, which "has overcome several defects of the old and has enabled the Bureau not only to extend the inspection but improve its efficiency. The important matters of sanitation, of slaughtering and packing establishments, preparation of meats and products, use of chemicals, preservatives, etc., and prevention of fraudulent labeling are now controlled and regulated."

If now foreign sanitarians are not satisfied, what else can be done? And again, see that commission of experts, the cream of our sanitarians, appointed to consider and advise relative to those portions of the department's meat inspection regulations relating to the disposition of carcasses affected with various diseases and abnormal conditions. The members are: Dr. W. H. Welch, Professor of Pathology at Johns Hopkins University; Dr. L. Hektoen, Director of the Hygienic Laboratory, U. S. Public Health and Marine Hospital Service; Dr. J. Hughes, of the Chicago Veterinary College; Dr. V. A. Moore, of Cornell University; Dr. Leonard Pearson, of the University of Pennsylvania, and Dr. C. W. Stiles, of the U. S. Public Health and Marine Hospital Service.

After this part, reports are made relating to the improvement of milk supply, on the tick eradication, the eradication of scabies which is retarded by the removal of fences, the need for another experimental farm. Following this come the reports of the work of the eight principal divisions of the Bureau, Inspection, Quarantine, Pathological, Biochemic, Zoology, of the Experimental Station, of the Office of Animal Husbandry and of the Dairy Division. All of which have their special interest and among them the Inspection and the Pathological divisions where contagious diseases occupy pre-eminent places.

The report is short, covers only 69 pages, but in it Dr. A. D. Melvin has succeeded well in gathering the results of the great amount of work supervised by him with the assistance of his excellent staff.

A. L.

THE STATUS OF VETERINARY EDUCATION.

Two events of much significance in the educational world and of far-reaching importance to the veterinary profession, as well as to the public, have recently occurred on this side of the Atlantic—one in the Dominion of Canada and the other in the United States of America.

We refer, in the first instance, to the change of government and the extension of the curriculum of the Ontario Veterinary College in Canada from two short terms to a graded three-year course. In the second instance, we have reference to the appointment by the United States Government of a Commission on Veterinary Education for the purpose of obtaining definite information regarding matriculation requirements and course of instruction which is now being given in the various veterinary schools on the American continent. The commission is also to report as to what, in its judgment, should constitute the minimum requirements for matriculation and course of professional study to qualify veterinary graduates to participate in the Civil Service examinations for positions in the government service.

Recent reports of the Committee on Intelligence and Education of the American Veterinary Medical Association have shown wonderful development and a constant elevation of the standard of education in most of our schools. There is a great deal that the profession is justly proud of notwithstanding the fact that the investigation and inquiry by our international association has revealed unsatisfactory as well as commendable conditions even in the best schools. This is not to be wondered at when we consider how young the veterinary profession is on the American continent and the difficulties its pioneers had to meet and surmount for many years, in most instances, without recognition, support or encouragement from either state or the federal government. This is now all gradually but surely undergoing a radical change. We witness state after state recognizing the value of veterinary science to the commonwealth by appropriating large sums of money for veterinary education which causes every true veterinarian to rejoice. The advance guard of the profession is beginning to look forward to the time when a proper matriculation examination will be required to enter any American school and in anticipation of the establishment of an adequate four-year course of nine months each in the better schools. The American Veterinary Medical Associa-

tion and the affiliated Association of Veterinary Faculties and Examining Boards of North America will continue to harmonize the standard of veterinary education in America until their high ideals are fully attained.

The academic and professional standards established by state boards, civil service commissions and qualifications required of persons to fill important positions in educational institutions, experiment stations, agricultural and public health boards are likewise potent influences at work demanding not only a higher but a broader education for the veterinarian.

The adoption of a three-year curriculum by the Ontario Veterinary College brings the last school on the American continent, worthy of the name, up to the minimum educational standard adopted a number of years ago by the American Veterinary Medical Association for eligibility to its ranks. This is a great stride in advance. The school and the profession are alike to be congratulated.

Dr. E. A. A. Grange has been appointed Principal of the Ontario Veterinary College, which has been taken over by the Ontario Government, to be conducted as a provincial institution by the Ontario Department of Agriculture on lines similar to the Ontario Agricultural College. The Department has also leased the buildings of the old college.

Dr. Grange is a son of the late Sheriff Grange, of Guelph, an importer and breeder of thoroughbred horses as far back as 1852. He was graduated as a veterinarian from the Ontario Veterinary College in 1873. For a time he was a lecturer at the college. From 1873 to 1882 he was professor of veterinary science at the Ontario Agricultural College. In 1882 he was appointed professor of veterinary science at the Michigan Agricultural College, and for some years was State Veterinarian of Michigan. During the past six years Dr. Grange has been engaged in private practice in the City of New York and vicinity. His first work in his new position is to provide for a three-year course in keeping with the advancement of the science.

The United States Commission on Veterinary Education was appointed by the Secretary of Agriculture, and its organization consists of Dr. Richard P. Lyman, Secretary of the American Veterinary Medical Association, *chairman;* Dr. A. M. Farrington, Assistant Chief of the Bureau of Animal Industry, *secretary;* Dr. Joseph Hughes, President of the Association of Veterinary Faculties and Examining Boards of North America; Dr. Tait Butler, Secretary of said association, and Dr. Paul Fischer, State Veterinarian of Ohio.

It would be impossible to select a more representative body of veterinarians than these gentlemen who are all active and influential members of the American Veterinary Medical Association and who have been closely identified with the work of the organization in the advancement and upbuilding of the veterinary profession in the western hemisphere.

The profession will await with much interest the appearance of the official report of their labors. The REVIEW feels confident that the schools will gladly comply with such recommendations as the Commission may make for the betterment of conditions for the benefit of veterinary education and the advancement of the science.

We anticipate that the defective features in the teaching facilities of each school will be pointed out and that a minimum standard will be recommended which schools will have to maintain in order for their graduates to be eligible to take the civil service examination for government employment. This cannot help but be productive of much good in crushing out unworthy schools and in strengthening weak schools of the right kind by bringing them up to a higher state of proficiency which will redound to the benefit of veterinary education in general.

NO CHANGE OF DATE.

Notwithstanding the fact that out of a vote totaling approximately five hundred there were registered only six votes in the negative, yet President Dalrymple has found it wise, after

proper deliberation, to make a strict interpretation of the by-laws and has decided that the 45th annual meeting of the American Veterinary Medical Association shall be held on the 8th, 9th, 10th and 11th days of September, as originally announced from the Secretary's office.

The six members voting in the negative expressed themselves most emphatically against a change of date for the forthcoming meeting at Philadelphia, claiming that the proposed change as recommended by many members to the Executive Committee would materially interfere with the vested rights of members which is prohibited by article XII., section 2 of the by-laws. A legal opinion was obtained and it was found that the vote was negative as there is no provision legalizing a postal card vote, it being merely an expression of opinion of the membership. If the vote had been unanimous the proposed change of date could readily have been made, but as it stood there did not seem any alternative for President Dalrymple but to render his decision in conformity with a strict interpretation of our by-laws.

There is, however, a practical way out of such a legal difficulty which could have been accomplished, if thought advisable, by calling the meeting on the regular date but for the great body of members not to attend until the latter date, leaving the members of the local committee to adjourn the meeting from day to day in the same manner as is sometimes done by legislatures and other representative bodies. The propriety of this method may be somewhat doubtful for our purpose and we believe it might be otherwise unsatisfactory.

Furthermore the President has rendered his decision and the only thing for us to do is to make our plans accordingly. Veterinarians must not look too seriously upon the decision, for after all it simply means that their vacation is to be extended one week longer than originally contemplated, and goodness knows there is no one who needs a vacation and rest more than the veterinarian and his family.

EPIZOOTIC LYMPHANGITIS.

Epizootic lymphangitis of horses was discovered some time since in the state of Pennsylvania, as recorded last November in the REVIEW. The disease has since been reported from other states of the union.

In some instances the disease has been mistaken for chronic farcy, and has been diagnosed as such, and the affected animals have been destroyed. It appears, however, that some of these cases of so-called chronic farcy are in reality cases of epizootic lymphangitis.

Where there is the slightest doubt as to the nature of the disease no veterinary practitioner should content himself without a laboratory diagnosis. Cultures made from affected animals will disclose the specific organism, the *Saccharomyces farciminosus*. Economic as well as scientific considerations demand a definite and accurate diagnosis.

ACADEMY OF SCIENCE SELECTS VETERINARIAN FOR ITS PRESIDENT.—The REVIEW believes that veterinarians should never lose an opportunity to engage in related scientific research work and investigation, and it sees results of inestimable value and far-reaching import to be attained from associated efforts.

We note with pleasure that our talented colleague, Dr. Tait Butler, of Raleigh, N. C., who has labored long and well to bring the veterinarian and those having allied interests into a closer touch, has not only been highly successful in his accomplishments in that direction, but that the relative value and usefulness of his work has been *recognized by members of other learned professions* in his recent election to the presidency of the Academy of Science of his state.

GUITAR FAILS TO STOP BULL.—At the Almanzar bull ring in Madrid a performance was recently given by Arrogante, a famous matador, who tried in vain to imitate Orpheus in the bull ring. The bull-fighter stood alone in the arena playing a guitar when the bull was loosed from the toril, but the charms of his music were powerless to stop the rush of the animal, which put an end to his Orpheus act by goring him badly.

ORIGINAL ARTICLES.

BIER'S CONGESTIVE HYPERÆMIA IN VETERINARY PRACTICE.*

By Dr. THEODOR SCHMIDT, *Adjunct to the Surgical Clinic of the Royal Veterinary Academy in Vienna.*

Translated by Dr. A. T. PETERS, *Professor of Animal Pathology in the University of Nebraska.*

Early in the year 1905 Prof. Bier reported to the Surgical Congress in Berlin a hundred and ten cases, which had been treated according to his method by means of congestive hyperæmia and published in the *Münchener Medicinische Wochenschrift, Jahrg.*, 1905, *Nr.* 5-7. His article on the treatment of acute suppuration by means of congestive hyperæmia (Behandlung akuter Eiterungen mit Staungshyperämie) is a monograph from his pen. "Hyperämie als Heilmittel" (published by Vogel in Leipzig) had already appeared in 1903.

Immediately after the publication of this work, with the sanction of the director of the clinic, Prof. Dr. Bayer, I first attempted to prove the usefulness of this method of treatment which had yielded such good resuls in the human subject.

Dr. Bayer also laid emphasis on experiments to determine its effect in bacterial inflammations of tendons, of tendon sheaths, in periostitis fibrosa, etc. Results of these were to be recorded whenever reported.

Before I give my observations I should like to review the comprehensive work of Bier and the other literature, already considerable in amount, pertaining to this subject. I will here occasionally quote the authors verbatim. This may be desired by many of my colleagues, who are not located where they may read these publications, since they may then form an opinion concerning the view of Bier and thus ultimately discover another

*Read before the Nebraska State Veterinary Medical Association.

and perhaps more practical method of applying this treatment from a veterinary standpoint, as we determined in the clinic. For the veterinary surgeon it may be of special interest to attempt a scientific explanation along the line of Bier's theory of the action of detracting or derivative remedies, such playing now as always a great role in all kinds of lameness, which is the most important and most difficult part of veterinary surgery.

In the introduction to his great monograph Bier points out the importance of biology on which the practice of medicine is necessarily based if it claims to be a science. He lays stress, however, on the fact that the etiological standpoint must not only be sound, but that it must also agree with conditions observed in nature.

Hence he emphasizes the fact that all important manifestations of life are accompanied by hyperæmia. Every organ, which functions, is hyperæmic. In all growth and regeneration hyperæmia is present. All procreation or propagation is characterized by the greatest hyperæmia. There is no centre of disease which the body seeks to remove or render inert that is not permeated or surrounded by hyperæmia. If the reactions of the body are to be regarded as useful attempts at repair or cure, then we must admit that the most universally present means of Nature's healing is hyperæmia. The organism thus exhibits local hyperæmia in all important changes in the various parts of the body. This hyperæmia is brought about by retardation as well as by acceleration of the blood stream. Thus, if we wish to support the healing power of the body, and would imitate nature, we must accelerate the blood stream, producing arterial or active hyperæmia, or retard it, bringing about passive or venous hyperæmia.

(a) *Production of Active Hyperæmia.*—There are many methods at our command. Very useful in practice and in use for the last thousand years is heat which may be applied in the greatest variety of ways. Dry heat may be used in the form of radiant heat, hot sand, hot air, etc. Moist heat may be em-

ployed as hot poultices, cataplasms, fomentations, baths, douches, mud, and hydro-thermo regulator of Ullmann as reconstructed for the purposes of veterinary surgery by Bayer.

Increased muscular activity, various kinds of massage and electricity produce strong active hyperæmia. A great number of chemicals (tincture of iodine, mustard, turpentine, cantharides, etc.) may induce hyperæmia. At first sight there appears no doubt but that we are here dealing with an arterial hyperæmia, in accord with the old medical rule, "Ubi stimulus ibi affluxus." This, however, is not proven, since all of these chemicals excite inflammation, in which a retardation of the blood stream follows the initial acceleration. It is likewise uncertain whether cupping produces arterial or venous hyperæmia, since the one gradually merges into the other. In the same group belong the now discountenanced rowel and pus-bandage, fontanellen and the ferrum caudents so highly valued in veterinary medicine.

From very early times methods of producing hyperæmia have been used against acute inflammations and suppurations in accord with various theories. Especially from the appearance, people supposed that the inflammatory œdema was something terrible and sought to draw away the stagnant blood or other bad fluid from the centre of inflammation into the skin. A false theory here led in part to a correct practice. In reality they increased the hyperæmia which they wished to remove.

Bier believed that the action of the irritating agents depended in the first place on hyperæmia and concluded that they act many times exactly like methods producing this alone.

Although many experiments on the physiological action of agents producing irritation of the skin (revulsiva and derivantia) have been made, we must say that as yet the ultimate action of irritants has in no way been scientifically investigated and this phase of the subject is merely referred to. Schede (Archiv f. klin. Chirurgie, Bd. XV., 1873) tried a number of cutaneous irritants, which he used on the tissues, especially the tincture of iodine in its local action. He was able to prove that the tincture

of iodine, merely painted on the skin, brought about œdema not only in this, the subcutaneous tissues, the muscles and the intermuscular spaces along with an infiltration of leucocytes, but he found the latter even in the periosteum. He demonstrated inflammatory stimulation also in the bone marrow and processes of growth in the cells of the epiphyseal cartilage. Mustard oil acted still stronger in this regard, and croton oil was the strongest of all.

He says that in a large number of cases the inflammatory stimulation produced hyperæmia for a great distance. Thus, Bier could always find that in deeply lying inflammatory centres the section through the skin above them already contained much more blood than normal skin. Where the incision of the abdominal wall has bled excessively in experimental laparotomies, he has often expressed the opinion that there would be found an inflammatory centre deeply seated in the abdomen and was usually correct in this. In this case it depends on the blood vessels which are connected at best by insignificantly developed tissues. In confirmation of this, Bier has several times found the cutaneous temperature itself raised one or more degrees in cases of chronic deep-seated inflammations. Bier says, "Would a deep-seated inflammation extending outward to the surface act otherwise when turned about?"

Bier has determined how far an inflammation due merely to some chemical can extend from the place where it is first induced. He applied oil of turpentine and thus quickly healed a pseudo-arthrosis of the thigh which had resisted all kinds of treatment, even suture of the bone and injection of tincture of iodine. It caused, however, an excessive reaction; the leg swelled with great œdema from the toe up to the groin; it felt hot to the touch and remained in this condition several days. We were able to make similar observations in the clinic, following the widely recommended subcutaneous injections of oil of turpentine in cases of shoulder lameness in the horse.

To the devulsives may be added the use of the cautery on the skin. Even to-day this is not forgotten in human medicine

and is employed especially in very stubborn and painful spinal inflammations for producing a broad ulcer on either side of the back. Without further argument it is clear that this method brings about a very high degree of hyperæmia of the skin. That the hyperæmia extends deeply is very apparent since a long continued inflammatory hyperæmia would naturally follow in case the ulcer resulting from the cautery did not remain entirely aseptic and heal under a scab as a consequence. In order not to be misunderstood, Bier further observes that he does not intend to deny the reflex action of devulsives on distant parts of the body and admits the possibility that healing processes may thus be induced. The principal action of devulsives, however, is to call forth a hyperæmia of the diseased or injured portion of the body. In this way they perform a function quite the opposite of their name.

Bier also explains the action of salicylic acid on diseases of the joints by hyperæmia. Similarly he explains the action of Finsen's light in lupus. He regards the action of erysipelas in the same way when this spreads over a patch of lupus.

A never disputed action of devulsives is the very apparent relief of pain. The opponents of the method must recognize this fact. They cling to the explanation that it is due to suggestion. This is an easy way out of the difficulty. In animals, however, suggestion is of no value. We could produce clinical experience to show that after the application of an irritating salve, *e. g.*, in an acute serous tenosynovitis of the tendon of the os suffraginis, as soon as the first pain caused by the substance applied was over, the animal was at once much less annoyed by the limb concerned in many cases. Aside from this, however, these methods produce results which may be explained by hyperæmia in that they act by absorbing and dissolving. Of course, the use of any of the cutaneous irritants causes a certain amount of destruction of the tissues since they produce an inflammatory irritation, which always signifies an injury to the tissues. The congestive hyperæmia, on the other hand, induces the hyperæmia and its results entirely without injury.

(b) *Excitation of Passive Hyperæmia.*—Paré appears to have been the first man to recognize the value of artificial congestive hyperæmia in deficient callus formation. Then Nicoladoni con Dumreicher is said to have recommended passive hyperæmia in threatened pseudo-arthrosis. Aside from fractures and experiments in nutrition no one before Bier has employed congestive hyperæmia. Since 1892 Bier has tried this also in tuberculosis of bones and joints, and to him belongs the credit of having recognized the value of this method in a very great variety of inflammatory processes. For more than a decade Bier labored in spite of slight recognition and much opposition to further improvement of this method or extension of its use in an intelligent manner until the treatment finally found its way into human surgery.

The obstructive hyperæmia treatment is carried out in the manner following: Above the lesion there is applied around the limb concerned a rubber bandage in several layers so firmly that a great obstructive hyperæmia arises. In acute inflammations this is attained by relatively slight constriction. The bandage should produce if possible a red fiery œdema. It should not be applied too near the seat of the trouble; in inflammatory diseases of the hand and of the foot it should be placed as a rule on the arm and thigh respectively. In this way, especially on the arm, one may frequently observe that the appearances of inflammation which were before limited, for example, to the hand, very soon extend up to the bandage on the arm but not above it. The parts of the body peripherally or distally to the inflammation focus are not involved but are merely subject to the hyperæmia, so that the entire treatment consists in applying a rubber bandage above the diseased part. The bandage must never cause pain in the diseased area, since here also, as in other diseases where the obstructive anæmia treatment is indicated, the almost immediate quieting and lessening of the pain is the most apparent result of the treatment. In acute inflammations a blue color of the limb must be avoided even more certainly. This can be accom-

plished by applying the bandage more loosely than before. One must not be too timid, however, in applying the bandage closely, if he expects results.

The acutely inflamed limb must become greatly swollen and œdematous, must feel warm to the patient and be fiery red where possible. If this is no longer to be attained, then the height of the disease is already past, as a rule, and it is on the way to improvement and near recovery. Occasionally vesicles appear on the parts treated. This is usually because the bandage is too firmly applied or there is an abscess present, which demands an incision and drainage.

In acute suppurations the bandage is worn daily for at least ten hours. In severe cases this is not long enough. The time must then be increased to twenty or twenty-two hours to get results. With regard to the time limits we must individualize. After an interval of freedom from the treatment, during which the appliance can be changed, the bandage is placed either higher or lower than before. If it is placed lower it must be tightened as soon as the obstructive œdema produced by the previous treatment is removed. In proportion as the pain is lessened, the obstructive or congestive period can be shortened. The greatest attention is necessary during the first day, since Bier believes that the fate of inflammation and suppuration treated by an obstructive bandage is decided most of all in the first days. If the bandage produces signs of pressure, a soft cotton bandage can be interposed, or several pauses may be made during the day. Lymphangitis and lymphadenitis are usually improved even above the bandage, because they drain the original diseased focus favorably and in adition the absorption of the bacterial toxin from this is lessened. From this Bier knew that in the longer application only the hot congestion is efficacious; the cold, on the other hand (from too long use of a bandage applied too tightly), may bring injurious consequences, because it leads to significant disturbances in the circulation. Instead of the elastic bandage, aspirators and cupping-glasses are used for many parts of the body.

(c) *General Actions of the Hyperæmia—*

1. Relief of Pain.—There is scarcely an action of hyperæmia which is more apparent than the lessening of pain. We must abandon the old view that hyperæmia, for example inflammatory hyperæmia as such, causes pain. On the contrary, this arises from the injury of the cells and nerve endings, which happens in any inflammation and which is repaired by the subsequent hyperæmia. The long known thermal relief of pain is according to Bier entirely produced by the action of hyperæmia. The analgesic action of hyperæmia is not merely useful, but it is agreeable to the patient. This is the principal action which restores mobility of stiff joints soon after its use. Since the stiffness of the joints in all kinds of inflammations is only in part dependent on grave anatomical causes, another part is brought about and maintained by muscular contraction, the first cause of which was the painful irritation of the nerves in the joint. The contraction as a sequel of the pain vanishes when this is relieved. Only thus can we explain that stiff joints become movable immediately after the use of an agent producing hyperæmia. Indeed pain and stiffening again appear very soon after the removal of this agent. If the hyperæmia does nothing more than relieve the pain during or even for a long time after its application, we are merely getting a sham result. Fortunately, this method has numerous other actions which favorably influence the causes of disease and the anatomical conditions resulting from them, so that the pain of the injured or diseased parts is soon diminished or vanishes altogether not only directly because of the hyperæmia but mostly indirectly through improvement of the disease.

2. Bactericidal and Attenuating Action of the Hyperæmia.—Nötzel succeeded in saving the lives of 51 out of 67 rabbits by means of obstructive hyperæmia applied to parts of the body into which he had injected otherwise fatal doses of anthrax bacilli and very virulent streptococci. That the obstructive hyperæmia alone prevented the death of the animals is proven by the fact

that all of them were inoculated with the same bacteria a few weeks later but without treatment by obstructive hyperæmia, and the infection ran its course as it did also in the control animals. Of course, an artificial, fresh infection is quite different from one acquired in a natural way, where the bacteria are already adapted to the conditions found in the body and in part apparently to the resistance found here. Nevertheless the experiments have a high value. The bactericidal action has been investigated by several for the purpose of harmonizing the various views held as to the protective value of the different constituents of the blood.

Buchner explains them by the increased number of leucocytes at the place of infection. These kill the bacteria by giving off *alexius* to the serum. In later works he attributes the digestion and dissolution of the bacteria to *enzymes* which the blood contains, especially from the disintegrated white corpuscles.

Heller thinks that the obstructive hyperæmia retains or holds back the products of metabolism of the bacteria. These products in turn kill the bacteria. Thus, in tuberculosis we would have a tuberculin-like action.

Hamburger says: "Through the congestion the blood becomes richer in CO_2 and this increases the bactericidal power of the serum, because the CO_2 itself is bactericidal, because under its influence the red blood corpuscles swell by taking up water from the serum, thus raising the concentration, and lastly because the serum takes up diffusible alkaline salts. This last happens partly because with the greater concentration of the serum the percentage of alkali is increased; partly because under the influence of CO_2 alkali passes out of the blood corpuscles into the serum and, through destruction of albuminates of the serum, diffusible alkali is set free. Numerous experiments show the influence of the alkali on the antibacterial action of the blood plasma." For example, the immunity of rats against anthrax depends on the alkalinity of the blood, according to von Behring. Von Fodor was able to increase the resistance against

anthrax by injecting alkali into the circulation, and, vice versa, could lessen it by the introduction of lactic acid. Moreover, in immunized animals there is present an increase of blood alkalinity. Furthermore, Hamburger could prove that the bactericidal power of the blood plasma is increased in venous congestion and that the lymph arising from this œdema is more strongly bactericidal than the blood serum of the same animal, which serum, otherwise, exceeds the normal lymph in this regard.

The influence of the CO_2 on the phagocytes (chemotaxis) in venous congestion is but slight and a large amount of CO_2 is necessary to retard the activity of the leucocytes. In moderate congestion the phagocytosis is greater; hence one might explain the action of obstructive hyperæmia according to Metchnikoff's views.

Obstructive hyperæmia thus accords with all of these theories.

Prof. von Baumgarten, of Fübingen, recently published some experiments on the action of Bier's obstructive hyperæmia ("Ueber experimentelle Untersuchungen über die Wirkung der Bierschen Stauung," in *Münchener med. Wochenschrift*, Nr. 48, Nov. 27, 1906). Since he secured some results which do not harmonize with the theories mentioned above, I should like to present the most important of them here. According to von Baumgarten various causes apparently take part in the action: "Doubtless the bactericidal power of the congestive transudate plays a role, even though it may not be correct that the congestive transudate possesses a stronger bactericidal power than the blood serum of the same animal, as stated by Nötzel. The bactericidal power of the congestive transudate, as Heyde reported from certain experiments, is decidedly much weaker than that of the corresponding blood serum, which is very apparent as we have long known, on account of the smaller albumen contents of the former as compared with the latter. Nötzel is probably right, however, when he regards the increased accumulation of a bactericidal fluid in the tissue incident to venous congestion as a factor in the healing action. The bactericidal fluid in the tissue incident to venous congestion is a factor in

the healing action. The bactericidal action of the fluid in the œdematous tissue, as Lexer has already suggested, is a two-edged sword, since it destroys more or less bacteria throughout a considerable area, but in so doing liberates the deadly endotoxins of these organisms. Many injurious secondary effects of the venous stasis in the congested parts may probably be explained, as I believe with Lexer, by the local action and dissemination of these liberated endotoxins. The acute exacerbations of the clinical course in severe cases may be similarly explained, as Lexer has observed in man and I in experimental animals, by the rapid absorption of these poisons after removal of the bandage. In beginning infections and in those of a less serious nature, the advantage of the increased bactericidal action brought about by the congestive transudate will overbalance by far the disadvantage of the endotoxins. In such causes the obstructive treatment paves the way for the healing processes. With what difficulty, even under such favorable conditions, the increased bactericidal power of the body fluids, due to obstructive hyperæmia, can completely destroy the bacteria is shown repeatedly by reports, experimentally proven, of the existence of virulent pus-forming cocci in focci of infection apparently healed by obstructive hyperæmia. The medical power of nature on which Bier's treatment depends cannot be overvalued. Important as may be the increase of the natural healing forces in estimating the efficiency of Bier's treatment, we cannot be ascribed the favorable results of the method to this alone. Next to this factor in importance there is a certain role played by the hindrance of absorption produced by the bandage. The significance of this factor was shown especially in our anthrax experiments in which the animals were saved from death by anthrax through retaining the bandage in place 36 to 48 hours, while they quickly died if the bandage was removed after 24 to 30 hours. Evidently this purely mechanical hindrance cannot have the significance of a true healing process. As another factor in the efficiency of this method may be noted the slowing of the circula-

tion and the lessening of the blood supply whereby the amount of oxygen available for the bacteria is decreased. This oxygen is especially necessary for ærobic micro-organisms such as the anthrax bacillus. Not without favorable influence also may be the dilution of the toxins due to the obstructive œdema. These toxins are produced by the living bacteria and not by the destruction of these as is the case with the endotoxins. Lastly, as I believe, the venous congestion, although it injures the tissue, is useful in so far as it injures to a much greater degree the bacteria also by means of the pathological change of the tissue metabolism. In this way it helps to free the tissue cells from the grasp of the bacteria. This view, which was scarcely regarded in former explanations, of the efficiency of Bier's treatment, is based on the observation that the specific parasitic organisms find the best conditions for existence and growth in the healthy tissues, which carry on normal metabolism in the body of the host. In connection with this it should be observed that every change of the normal metabolism in the tissues mentioned, can make of these a less favorable or even an unfavorable culture medium for the attacking micro-organism. To give to this good theoretical possibility a practical significance in the results of Bier's treatment and not to attribute these to the bactericidal action alone of the obsructive œdema, necessitates in my opinion the recognition of the very slow destruction of a part only of the organisms and merely the attenuation of others in the congested area, a pathological picture, which gives one the impression of a starvation rather than a death by poison from bactericidal substances. If we considered the increase of the action of the bactericidal serum and the decrease of the nourishing qualities in the culture medium of the bacteria concerned, as the chief factors of the happy results of Bier's obstructive treatment in infectious processes, then it is conceivable that this treatment is contraindicated in tuberculous processes, since the tubercle bacilli are practically indifferent to the bactericidal substances of normal serum and extremely resistant to starvation also."

According to Riedls' observations the walls of the veins and capillaries especially are affected by noxæ or poisons, perhaps toxins or endotoxins generated by the bacteria, so that the blood coagulates in the vessels. This coagulation, however, extends further than the causal injury of the vessel wall; we may thus infer that a greater portion of the tissue always suffers damage from malnutrition due to a failing supply of nourishment thus injuring the bacteria, than that included in this area made directly incapable of life. Thus an extension of the inflammation may be regarded as a continuous advance of the smallest and smaller venous inflammations. The dilatation of the veins in inflammation is mostly for the purpose of carrying away the increased blood supply, improving the nourishment, providing for the quickest possible establishment of the collateral circulation in case of thrombosis, and giving the most unfavorable conditions for coagulation process as well as promoting the formation of granulations. For this purpose of hindering coagulation and favoring nourishment, the reflex dilatation of merely the efferent vessels and especially of the veins in their capillary portions appears to suffice. The artificial congestions of Bier's treatment produces a prophylactic dilatation of the veins, so to speak, since the natural congestion does not appear until the time of greatest danger when it is often too late. By these measures the animal succeeds in walling off the focus of inflammation from the healthy area first by a round-celled infiltration and then by granulation tissue, both of which processes are favorably influenced by the increased amount of blood. It is then no longer possible for the bacteria to destroy healthy tissue since this is now protected by the granulation tissue. At the same time the culture medium is withdrawn from the bacteria and they must then starve.

3. Absorbing Action of Hyperæmia.—Bier first showed that the active hyperæmia (*e. g.,* hot air), when not employed too long, improved absorption very much. If used for 8 to 10 hours, however, it had the opposite effect, *i. e.*, œdema. The

promotion of absorbing power by active hyperæmia agrees with our present knowledge concerning the method of absorption when at its best. We know that almost all absorption of fluids and of substances soluble in water takes place through the blood capillaries and not as we have often supposed through the lymphatics.

Klapp experimented with milk sugar, which, according to Voit, after being injected subcutaneously, is completely excreted in the urine and can be demonstrated quantitatively in this by means of the polariscope. He ligated the thoracic duct and the right lymphatic duct in a dog and thus closed all lymph channels which could carry to the venous system any of the sugar which he injected into the abdominal cavity. In spite of this all of the sugar again appeared in the urine as quickly as it had done in the control experiments a few days before with the same animal while the lymph channels were still normal. The lymphatics thus hold a very subordinate position in the absorption of water, salts and substances soluble in water. Von Recklinghausen has proved just as conclusively that small-formed or insoluble constituents (milk, emulsion, blood, cobalt, Indian ink) are taken up through the lymphatics of the abdomen. Wölfer experimented with potassium ferricyanide in order to show the influence of hyperæmia upon absorption. The solution was dropped on wounds of a limb previously deprived of blood, which was then allowed to flow. In this way the reagent could be demonstrated in the urine in one-third of the time required where the limb was not deprived of blood beforehand. As is known, a great arterial (so-called relative) hyperæmia appears after the artificial anæmia. This would go to show that arterial hyperæmia hastens very markedly the absorption of substances soluble in water. Klapp performed experiments with milk sugar and found that its absorption was hastened by hot air apparatus.

4. Dissolving Action of Hyperæmia.—In those diseases, where we have employed hyperæmic methods successfully, we seldom have to deal with fluids or with soluble compounds, but

generally with solid substances, which must finally fail to be absorbed. There is no doubt but that the solution of pathological solid material may be brought about by hyperæmic methods. In one patient, thick nodes, easily seen and palpated on the extensor tendons of the fingers, remained as a sequel of gonorrhœa. These quickly disappeared under obstructive hyperæmia and treatment by hot air. Bier recalls in this connection the fact that from ancient times the so-called counter-irritants and devulsives, or, as he interprets them, hyperæmic methods, have been used for the purpose of dissolving. This action has sometimes been well referred to as a softening or breaking up of the infiltrated area. It is undeniable, that inflammations, especially purulent inflammations, have a tissue-dissolving action. This has been attributed especially to the pus corpuscles. The above-described similar actions of pure hyperæmic methods, however, would apparently indicate that the mere inflammatory hyperæmia likewise plays a rôle here. Bier recalls that the cicatrices of the vagina, which are so bad that they would hinder delivery if they remained unchanged, are so softened during pregnancy that they become extensible and birth of the child is then possible without difficulty. In this process, however, there is no supuration and the laxity has been brought about only by the immense hyperæmia which arises in all portions of the uterus and vagina during pregnancy. Connective tissue growths and cicatrices apparently become softer, more flexible and more extensible in consequence of serous infiltration. Buchner has recently attributed constructive (assimilating) and destructive (disassimilating) substances to all the cells of the body. The destructive substances are said to be given off from the cells as dissolving and digesting juices (enzymes) to the blood serum which thus acquires this action. The constructive substances are said to remain attached to the cells. According to Buchner the destructive substances (digestive compounds or enzymes) dissolve all foreign materials.

5. Nourishing Action of Hyperæmia.—That hyperæmia as such has a nourishing action, is a very old assertion. First of

all this has been claimed for the so-called functional hypertrophy. Two questions will thus arise: (*a*) Can we, by hyperæmia, bring our distant body tissues into a condition of overnourishment and can we thus influence the physiological growth? (*b*) Can we hasten or stimulate the regeneration of tissue by hyperæmia?

(*a*) Influence of hyperæmia on the nourishment of distant parts of the body and on physiological growth. Hyperæmia, either active or passive, doubtless leads to a lively growth of the covering epithelial structures. For example, it is known that in summer, when the skin contains more blood than in the winter, the hair and nails grow faster. One sees also hypertrophis epithelial thickenings and an increased growth of hair near chronic ulcers, which continue to be hyperæmic. Experimentally the spur of a cock was grafted in the richly vascular tissue of its comb and thus grew to an enormous size. On the other hand, the dissecting or penetrating glandular epithelium does not hypertrophy during hyperæmia, for example, in congestion of the liver or kidneys. Chronic congestion of the blood vessels or still more frequently lymphatic congestion and chronic or often repeated inflammations lead to thickenings of the skin, the so-called elephantiasis. Von Langenbeck summarized his conclusions concerning the influence of hyperæmia on the growth of the bones in length and thickness under the following three statements:

1. Pathological causes, which produce irritation and hyperæmia of the osseous tissue, as long as osseous growth continues, bring about an increase in the length as well as in the thickness of the bone.

2. The increased growth in length occurs chiefly in the diseased bone, but may also be observed in a healthy bone of the same extremity.

3. The bone lengthened by premature growth retains its dimensions throughout life. A subsequent decrease in length due to absorption does not take place.

Roux is correct when he states that only the organs with passive functions (connective tissue and covering epithelium) hypertrophy through an increase of the supply of nourishment without further irritation. On the other hand, organs with active functions (muscles, nerves, secreting epithelium) never do this.

(*b*) Influence of hyperæmia on regeneration. Since the experiments of Ambroise Pari, of Von Dumreicher, of Nicoladoni, of Helferich, and of Thomas, we know that delayed callus formation is hastened and strengthened very greatly by introducing an artificial venous hyperæmia. Liek found that punctured wounds of the rabbit's ear healed very much more quickly when at the same time the sympathicus was cut through or when the highest cervical ganglion was removed. Pinzo devised an ingenious apparatus in which he could keep the temperature of one leg of a rabbit almost constantly at about +38°, and the temperature of another leg at +10°. In another test he demonstrated the influence of this apparatus on the healing of the bone fractures of the ulna. Here the difference was unusually marked. While scarcely the beginning of a regeneration process could be noticed on the cool side after seven or eight days, the fracture on the warmed side was already firmly united by callus, which, as the microscope showed, was almost completely formed.

Bier now asks which kind of hyperæmia best supports the upbuilding and regeneration of the tissue, and concludes that functional, active ryperæmia would probably be better for this purpose than the passive.

Hyperæmic methods have been long used to favor regeneration. Warmth in the form of warm, moist applications, poultices, etc., have been used to stimulate weak granulations. Under the influence of vaporization the demarkation and correction proceed very rapidly even in deep ulcers caused by fire or cautery. In this direction Nature can sometimes overshoot the mark as we may see rather frequently in veterinary medicine, for example, in changing the bandage after operations for fistula of

the withers or of the ligamentum nuchæ, contused wounds of the fetlock joint and carpus, etc. The moist warm application here gives off the profuse secretion of the wound to the bandage. One must often be surprised at the large growing granulations appearing in a short time and paving the way for the normal growth of granulation tissue.

In a special part of his treatise Bier remarks that we would expect obstructive hyperæmia like all other therapeutic measures to call forth reactions of various strengths in different individuals and that the same irritation which would be weaker for some would be much stronger in other cases. This must be constantly borne in mind when we employ treatment against disease. The degree of hyperæmia and the length of time it is to be continued must be established by experience in the different pathological conditions.

The indications for the employment of obstructive hyperæmia are rather numerous and are constantly increasing. Tuberculosis of the joints was the first disease in which Bier used this treatment.

It first occurred to him to employ hyperæmia against tuberculosis after noting the following observations of the older physicians: Farre and Travers in 1815 and Louis in 1826 remarked on the frequency of pulmonary stenosis and tuberculosis of the lungs in the same subject and explained this by the great anæmia of the lungs brought about by the heart lesion. Frerichs in 1853 made the statement that tuberculosis of the lungs is the usual termination of diseases of the pulmonary artery. Conversely, Rokitansky in 1838 established the fact that in congestion of the lungs, in case of a heart lesion as well as in curvature of the spine in the thoracic region, tuberculosis of the lungs is very rare.

Obstructive hyperæmia has also been used successfully in tuberculosis of the testicle and in acute and subacute arthritis of a gonorrhœal nature, as well as in acute articular rheumatism, in severe puerperal inflammations of the knee joint and in traumatic

arthritic with considerable discharge and suppuration of large joints. It has also been employed with good results in facial erysipelas, in phlegmon of the tendon sheaths, in chronic stiffening of the joints, in neuralgia, and in acute osteomyelitis. paronychia, phlegmon of the hand, furuncle, carbuncle and infected wounds may also be treated with success by obstructive hyperæmia. In abscesses of the oral cavity, in inflmammatory diseases of the tonsils and in chronic angina, the cupping apparatus is very valuable. Satisfactory results have been reported also with senile gangrene, wherein the sudden disappearance of the terrible pain, the rapid cleaning up of the wounds and the appearance of healthy granulation tissue are all very evident. Especially good results are obtained in suppurative inflammations of the mammary glands.

The especially praiseworthy advantages of the treatment by obstructive hyperæmia are the following: 1. Large painful incisions are done away with. 2. The painful tampon is no longer necessary. 3. Severe disturbances of motion in affections of the joints and tendon sheaths are avoided. 4. The time of treatment is usually shortened. 5. No unsightly scars are left, since large incisions are unnecessary.

We first tried obstructive hyperæmia in six cases of puncture of the coronet:

1. A six-year-old brown mare (Case No. 454-H) was brought to the clinic on February 15, 1905, with the history that she had injured the upper side of the coronet on the left hind foot in getting up on the day before and since then had been lame. The lameness was very pronounced. On examination there was found a laceration of the tissue, 2 cm. long and 1 cm. wide, somewhat inwardly from the middle line beginning on the coronet and extending up to the articular line of the pastern joint, from which synovial fluid was running out, so that the diagnosis of contusion with opening of the pastern joint was made. After removing the hair from the edges the wound was disinfected, eroform was applied, and the pastern was

bandaged. Temperature, 38.1°C. On the second day of treatment the appetite failed, the temperature rose in the forenoon to 38.3°C., with pulse of 54 and respiration 14, and in the afternoon the temperature went to 38.5°C., the pulse to 60 and the respiration to 18. The foot rested on the point of the toe only. The patient performed slight flexion and extension in the contracted limb as one usually observes in suppurative inflammations of the larger joints and tendon sheaths. From the second to the tenth day of the treatment the temperature varied from 38.4 up to 39.0, the pulse remained 60 and the respiration at 18. She ate the smallest possible amount of food. During this period the bandage was changed twice, at which times only a small amount of wound secretion mixed with synovial fluid was seen. Balsam of Peru was applied with the new bandages. On the tenth day for the first time the obstructive hyperæmia bandage was applied directly below the hock joint for ten hours. Likewise on the eleventh and twelfth days the bandage was worn for ten hours, on the thirteenth day for five hours only. During this time the temperature never went above 38.0, the pulse remained at 60, the respiration at 16. The appetite was slight. The animal could put more weight on the limb at times. On the sixteenth and seventeenth days the obstructive bandage was applied for eight hours, and on the eighteenth for nine hours. Following this it was left off, after having been applied for a total of sixty hours. A rather severe, hot œdema was thus attained. A really favorable influence on the local lesion was not manifest. From the twenty-first day on the weight was borne on the leg better and the general symptoms were improved. On the thirty-first day of treatment the wound was healed. The horse was walked about. Thirty-six days after her admission she left the hospital. At this time she had a moderate swelling above the coronet but was not lame.

2. On February 21, 1905, an eight-year-old gelding (Case No. 517H) was brought to the clinic with the history that he had been lame for several days. At rest, the horse held the right hind leg flexed upward or touched merely the toe of the

horeshoe to the floor. The leg was moderately swollen up to the fetlock joint. Upon local examination there was found in the middle of the coronet a laceration of the tissue 1 cm. long with bruised edges. From the opening came a yellow, tenacious fluid full of flakes. The temperature of the animal was 39.0°C., the pulse 54, respiration 24. The horse would lie down frequently. Diagnosis, puncture of the coronet (penetrating wound of the coffin joint). Treatment: A semi-lunar excision of the horn corresponding to the injury together with antiseptic bandaging. After removal of the bandage on the fourth day thereafter there was present a slough 2 cm. in diameter in consequence of necrosis of the edges of the wound. The slight temperature persisted as well as the disinclination to rest weight on the injured limb. The obstructive bandage was applied for ten hours. On the fifth day of treatment it was applied for six hours; on the sixth day, seven hours; on the seventh day, four hours; on the eighth day, nine and half; and on the ninth day, eight hours; altogether forty-four and a half hours. During the first days of the obstructive hyperæmia a greater secretion of the wound was noticeable, as is the case rather frequently with this method of treatment. A favorable influence on the body temperature could not be proven. After the application of the badage the horse would usually raise his leg and then lie down. Hot œdema, such as is desired, could not be attained. For this reason on the ninth day of treatment the obstructive hyperæmia was abandoned. When the bandage was changed on the tenth day a loose piece of the pyramidal process of the coffin bone was lost. Decubitus sores appeared in several places. The body temperature varied between 37.8 and 38.5. The owner took the animal away on the twelfth day, since a complete cure of the condition could not be promised.

3. An eight-year-old heavy draught gelding, of a fox-red color (Case No. 695-H), was admitted to the hospital on March 10, 1905, with the history that several days previously the left forefoot had been injured on the coronet where the toe becomes continuous with the lateral wall. At this place there was a

granulating wound 2½ cm. in diameter and a corresponding loosening of the coronary band 5 cm. long. While standing at rest the animal placed no weight on the injured limb. While walking he showed a high degree of lameness. After taking off the horseshoe, we bathed the foot in creolin and then removed a corresponding semi-lunar piece of the horny wall. An antiseptic bandage was next applied. I wished to study the effect of obstructive hyperæmia on the very great lameness. After the application of the obstructive bandage on the forearm above the chestnut the horse began to sweat and become restless. Temperature 39.0, pulse 72, respiration 24. The bandage was seemingly not tighter than was usual in other cases. After four hours the bandage was removed, whereupon the horse became quiet. No other cause for the restlessness of the horse could be made out. Further applications of the obstructive bandage were not carried out so that the case could not be used to demonstrate the value of this treatment in the horse. The case is of interest only because of the fact that weight was well borne on the limb as early as the third day of treatment. On the twenty-sixth day the patient was discharged without any lameness and with a small granulating wound.

4. A dark, fox-colored mare, six years old (Case No. 2016-H) was admitted to the clinic with merely the history of going lame in the left forefoot fourteen days previously. On the coronet of the toe of the left forefoot there was granulating slough covered with pus about the size of a twenty-five-cent piece adjoining a subcoronary phlegmon. The adjacent swelling extended as high as up as the carpal joint. The animal was very lame. Temperature 39.2, pulse 60, respiration 24. The wound was given antiseptic treatment. On the day of admittance the elastic bandage was applied above the chestnut for seven hours. On the second day the bandage remained in place nine hours. The temperature at this time was 38.7°C. The weight was borne better on the affected limb. On the third day there was no fever, the leg was swollen up to the elastic bandage, but bore weight better and the appetite was good. The bandage

remained in place nine hours. From the fourth to the sixth days obstructive hyperæmia was maintained for ten hours daily. This made a total of fifty-five hours. Whenever the bandage was changed it was necessary to douche or irrigate the growing granulations. The patient was discharged on the sixteenth day with good function of the limb. The wound was already in the process of scar formation.

5. A seven-year-old chestnut brown gelding (Case No. 2596-H) was brought to the clinic on July 28, 1905, because of his great lameness in the right hindfoot. Somewhat medially or inwardly from the middle of the coronet of the toe was a fresh, triangular wound caused by a calk. A stream of clear synovial fluid was seen when the foot was raised and placed on the shoeing stool. Penetrating wound of the coffin joint in consequence of puncture of the coronet was diagnosed. After disinfecting with creolin, an antiseptic bandage was applied. Aside from a slight acceleration of the pulse up to 48 per minute and the lameness there were no symptoms. On the second day of treatment the temperature was 38.6, the pulse was 48 and respiration 18. The appetite was fair. The weight was badly borne on the affected limb. The elastic bandage was worn for ten hours directly below the hock joint. On the third day as well as on the fourth the bandage remained in place for ten hours. The temperature remained a few tenths above 38.0, the appetite was good and the weight was borne better on the affected limb. On account of bearing weight better on the limb and the absence of fever the hyperæmia was now discontinued, having been in use for thirty hours altogether. In this instance the obstructive bandage was always applied at the same place and not changed at each time as is usually done (*i. e.*, one day on the metacarpus, and the next on the forearm or leg as the case may be). The bandage was worn in the same place on three consecutive days for ten hours each. Besides this it is possible that it was too tight. Whatever the cause the effect was very evident. There was present a circular, superficial necrosis of the skin as wide as the bandage. It had the same appearance as does skin on

which one has used too strong a blister. The further course of the lesion was so favorable that the horse was ready for service and was returned to the owner on the twenty-fifth day of treatment. This was certainly an unusual result in a penetrating wound of the coffin joint inflicted under uncleanly conditions. It is questionable, however, whether this can be attributed to the obstructive hyperæmia. If we bear in mind that the wound could not have been primarily infected and that it was immediately treated, we may explain the result merely by primary healing of the capsular ligament of the joint.

6. Light brown mare, eight years old, was listed on December 15, 1905, as Case No. 4262-H. Four days previously the horse had injured the coronet of the right hind foot with the left hind foot. The temperature was 40.5, pulse 56, and respiration 24. While standing still the horse rested only the toe on the floor. She was very lame when walked about. There was a laceration of the tissue 3.2 cm. in diameter where the coronet of the toe becomes continuous with that of the inner wall. From this came a suppurative exudate mixed with synovial fluid. The edges of the wound were badlly bruised. The diagnosis was puncture of the coronet with opening of the capsule of the coffin joint. A semi-lunar piece of horn was removed corresponding to the contused wound which was disinfected and dressed with Balsam of Peru. On the second day of treatment the obstructive bandage was applied for ten hours above the hock joint. On the third day of treatment for eleven hours, on the fourth for nine hours, and and on the fifth for ten hours (forty hours altogether). The leg swelled up to the hock joint. The swelling was perhaps to be partly accounted for by the œdema caused by the obstructive bandage. The weight continued to be badly borne on that leg. The horse was lying down a good deal of the time. The appetite was poor. The body temperature varied between 39.4 and 40.2. Upon changing the bandage necrotic portions of tissue were repeatedly discovered. On the fifth day of treatment a fluctuating swelling was found round about the coronet.

On the sixth day of treatment spontaneous rupture of this swelling occurred in several places (suppurative periarthritis). The horse was pronounced incurable and was taken away by her owner.

Obstructive hyperæmia was also tried in seven cases of phlegmon of tendon sheaths.

1. A thirteen-year-old black mare entered the hospital on May 23, 1905 (Case No. 1636-H), with the history that she had acquired an injury in the right carpus caused by a violent fall. In the distal half of the dorsal surface of the right carpal joint there was a slough in the skin 3 cm. in diameter, covered with yellowish, granular masses, after the removal of which the tendon of the extensor carpi radialis muscle was exposed. The tendon sheath was opened. The edges of the lesion were jagged and bruised. The neighboring border, 1½ cm. broad, was excoriated. Lameness was very pronounced. The temperature was 38.5, pulse 54, respiration 20. Disinfection was by three per cent. creolin solution. An antiseptic bandage was then applied. During the next few days a slight fever was present and weight was borne better on the affected leg. On the fifth day of treatment a few necrosed pieces of tissue were met with when the bandage was changed. Synovial fluid was mixed with the secretion of the wound. From the twelfth to the seventeenth day open wound treatment was used. Tannoform was dusted on the granulations, which were growing somewhat. Weight was well borne on the limb. On the eighteenth day of treatment it was noted that weight was badly borne on the leg, temperature 39, pulse 60, respiration 18; synovial fluid was again seen and the surrounding swelling extended from the coronet half way up the forearm. The leg was packed from the hoof to above the carpal joint with compresses saturated with acetic acid clay. Improvement followed. On the twenty-third day of treatment, however, a new inflammation of the plegmonous process appeared. Moderate fever was present and weight was badly borne on the leg. On the following day the obstructive bandage was applied below the elbow joint for nine hours and for ten hours each on the

three next days (in all, 39 hours). The other part of the treatment was continued. No improvement was noted. On the contrary, an encroachment of the suppurative process on to the distended joint of the carpus was seen. On the thirtieth day after the admittance of the patient the owner had her destroyed. No effect of the obstructive hyperæmia could be noticed in this case. Of course this was not employed until the twenty-fourth day of treatment; the process was at this time far advanced and the bandage had to be applied to a place already greatly swollen with œdema.

2. A four-year-old black stallion, entered June 9, 1905 (Case No. 1880-H), has been lame for five weeks. Several days before this pus had appeared from a swelling at the fetlock. Upon examination great lameness was found in the right hind leg. An extensive moderate swelling, greatest at the fetlock, reached as far upward as the hock joint. On the medial and lateral surfaces somewhat above and toward the plantar side of the sesamoid bones there were small openings from which pus and synovial fluid were coming. Temperature 39.3, pulse 60, respiration 16. Diagnosed as a suppurative inflammation of the tendon sheath. The local treatment was intentionally confined merely to superficial disinfection and the application of a tenoform bandage. On the third day of treatment the temperature was 40.4; in the afternoon 39.6. The elastic bandage was applied above the hock joint for four hours. On the fourth day the horse bore weight on the leg very badly. The bandage remained in place nine hours. On the fifth day weight was borne somewhat better on the leg and the bandage remained in place for ten hours. On the sixth day of treatment a larger amount of thin pus mixed with synovial fluid broke through in a new place on the lateral surface. From this time on the elastic bandage was applied ten hours daily for a week. Weight was borne better on the leg. On the eleventh day all of the places where pus had broken through were healed. From the fifteenth day on the horse was walked about and warm moist bandages were applied. On the seventeenth day the patient was discharged with a slight thickening in the region of the tendon

sheath but without lameness. The case took such a favorable and rapid course as is seldom seen.

3. A twelve-year-old gray gelding entered on June 24, 1905, as Case No. 2086-H. This horse had injured himself in the right carpal joint by a violent fall on the day previous. Examination revealed an extensive swelling of the limb above the carpal joint. On the anterior surface of the carpus there was a circular wound 3 cm. in diameter with a loss of the tissue, so that the tendon of the extensor carpi radialis muscle was laid bare. Surrounding this wound there was a zone of abrasion about 1 cm. broad. The wound was contaminated with dirt from the street. The animal walked with moderate lameness. No general symptoms. A moist bandage of Burrow's solution was applied. Upon changing the bandage on the third day synovial fluid was visible. The elastic bandage was placed above the chestnut for seven hours. On the fourth day it was applied for eleven hours, and from the fifth to the eighth ten hours daily. In changing the bandage on the sixth day a fine granulating surface was to be seen, while synovial fluid was present only in very small amount. On the ninth day the bandage remained in place seven hours, after which day it was no longer used. The elastic bandage seemed to increase the œdema already present. Fine granulations, weight well borne on leg, and antiseptic dry bandage. From the eleventh day the open treatment was employed. No fever from this time on. On the 17th day a perceptible lessening of the defect was observed and granulations on the level of the skin. On the 29th day the subject left the clinic entirely well.

4. Ten-year-old gelding. Admitted August 10, 1905. Case No. 2797-H. The one in charge of the horse said he had been injured at work by a piece of iron and had been very lame since. On the fetlock joint of the right hind foot was a contused wound 3 cm. long running crosswise extending as far as the border of the tendons and clear to the bone. Considerable synovial fluid was coming from the wound, lameness marked, temperature 38.4, pulse 48, respiration 14. The wound was protected by an anti-

septic bandage, and on the first day the elastic bandage was applied below the hock joint for 11 hours. Second day, bandaged for 10 hours. Weight borne badly on leg. On the third day the bandage was left on for 10 hours, during which period better symptoms were observed. Temperature 38.6. On the fourth day the condition was the same. On the fifth day bandage was on 10 hours. Temperature 39. Weight borne worse. From the 6th to the 14th day inclusive the elastic bandage was applied daily for 10 hours, changing the position from below to above the hock joint and back again. During this time there was some fever rising at times to 39.7. Appetite variable; the leg bore weight badly throughout. During the repeated bandaging of the leg synovial fluid was always visible and the extremity was swollen extensively as high as the hock. In all the bandage was retained 141 hours. Although on the third and fourth days a better bearing of weight was present. No improvement could be perceived later so the obstructive treatment was discontinued. From the 16th day on the condition continued afebrile and weight was gradually borne better on the leg. The presence of synovial fluid was no longer observed. The treatment consisted in the daily application for half an hour of a warm foot-bath containing 1% creolin followed by an antiseptic bandage. On the 20th day the healing of the wound was well begun. At this time the horse began to move about. Before this it had been difficult to make him move. On the 27th day a circular, superficial, dried layer of skin was removed from below the hock joint corresponding in width to the elastic bandage. After several days this place showed considerable reproduction of epidermis. On the 33d day the horse was taken from treatment, still moderately lame, but with the wound healed.

5. Ten-year-old mare, admitted August 12, 1905 (Case No. 2816-H). It was reported that the horse had become entangled by its hind foot in a chain some four weeks before. Three days previous to admittance the condition had become worse. The lameness was very marked, the horse barely touching the ground with the tip of its shoe, and for the most part holding its foot

entirely off the ground. Extensive swelling present from the coronet to the centre of the metatarsus. The skin over the fetlock flexor was greatly reddened, the horse had a white fetlock, and from the outer surface of the fetlock and running into the flexor of the fetlock was seen a granulating wound 8 cm. long and 1 cm. wide. Corresponding to the lateral border of the flexor tendons was a fistulous opening the size of a pea, from which was coming a small amount of opaque synovia. On pressure over the tensely filled tendon sheath of the fetlock a greater amount of synovial was evacuated filled with flakes. At the same time the horse gave the liveliest evidence of intense pain. The temperature could not be taken in rectum. Pulse 48, respiration 24. The treatment consisted in merely the application of antiseptic bandages. On the first day the elastic bandage was applied 10 hours. The same on the second. A decided, warm œdema of the leg could not be brought about. The appetite was less; the weight-bearing power of the leg was the same as the day before. On the third day the bandage was retained 10 hours. The impression at this time was that the animal felt better in that attempts were made to use the foot at times. This case, which was especially adapted for experiment was lost to the clinic since the owner had the animal removed on the 4th day.

6. Black fourteen-year-old gelding, admitted August 14, 1905 (Case No. 2839-H). The horse was very lame in the right hind foot from a wound in the fetlock joint caused by a broken-off piece of shaft running into this. In the flexor of the fetlock more to the medial side was a fresh wound 5 cm. long, spreading open 3 cm., running diagonally, laying bare the flexor tendons and giving rise to considerable synovial fluid. In consideration of the contused edges two things had to be accomplished, aside from suturing the edges, *i. e.*, disinfection of the wound and antiseptic dressing. On the first day obstructive treatment was given 10 hours. On the second day the temperature rose to 38.7 which was the only instance during treatment. The elastic bandage was applied daily for 10 hours till the 12th day, the day of dismissal,

in all, 120 hours. Weight borne fairly well on the leg and course of wound favorable at time of discharge. A moderate degree of lameness was still present upon walking, but weight was borne well while standing at rest.

7. Nine-year-old gelding, admitted October 5, 1905 (Case No. 3490-H). There had been an extreme lameness in the left hind leg for a long time. Just above the outer lateral wall of the coronet was a swelling the size of a man's fist pierced by two fistulous canals which extended to the sheaths of the fetlock tendons. There was considerable swelling up to the hock joint. Temperature 39.2 to 40.7, pulse 76, respiration 24. In connection with the usual treatment the obstructive process was employed 10 hours a day from the 3d to the 6th day inclusive. On the 6th day was noticed in the place of application of the bandage a dry, parchment-like quality of the skin. A spreading gangrenous condition came on, followed by suppuration of the tendon sheath and the tissues adjacent, so that the horse had to be killed as incurable. There was no effect from the treatment, this being an exceedingly severe case.

Aside from these cases the treatment was used in the following:

1. Case of cellulitis of the fetlock from a grazing wound. The horse was sent from the clinic cured at the end of 14 days. A positive, constantly favorable, effect from the obstructive treatment could not be ascertained.

2. A very lame case resulting from stepping on a nail with the left fore foot four days previously. Temperature 39.4 to 40.6. No fall of temperature followed the obstructive treatment. No improvement of the lameness from reduction of the pain was observed. On the ninth day the horse died. On the section the following was seen: Pyogenic infection of the coffin-joint, necrosis of the flexor tendons of the coffin bone with rupture of them at the level of the navicular bone, necrosis of the flexor tendons of the os coronæ and rupture of these above the os coronæ. Septic cellulitis up to the carpal joints, pus organisms appearing.

3. Case of purulent, gangrenous inflammation of the sensitive foot (stone-gall) which led to partial necrosis of the senstive wall and the cartilage of the hoof. The obstructive treatment was employed for a total of 158 hours. At first about 8 hours daily and then later several times a day for about 2 hours at a time. In spite of the treatment the inflammatory process went on to the sensitive frog. No improvement in bearing weight on the leg. The horse was finally killed as soon as sloughing of the hoof began.

Under direction of the chief of the clinic the treatment was employed in several inflammatory cases not of infectious nature:

1. In two cases of acute serous tendo-vaginitis of the fetlock tendon sheaths.

(*a*) This case showed swelling of the tendon sheaths of the fetlock, tender to pressure and with elevated temperature. A moderate degree of lameness was present upon walking. On the first day the obstructive treatment was employed 9 hours, and for the next 6 days 7 hours daily. Considerable œdema and temperature was observed as a result of this. During the treatment weight bearing was good, the horse using the fetlock better at that time than in the intervals between treatments. On the 8th day the case was dismissed. No lameness appeared on walking, a slight limp appearing on trotting. In this case the treatment seemed to have a good effect.

(*b*) In a similar case treated with the obstructive bandage for 12 days only. A moderate decrease in the lameness could be noticed. The effect was not certain.

2. Three cases of inflammatory thickening of the flexor tendons and their sheaths.

(*a*) Inflammatory relapse in a case of thickened tendon of the flexor sublimus digitorum muscle of right fore foot. Animal was under treatment 19 days. For 9 days the elastic bandage was applied for about 8 hours each. Decrease of lameness. Value uncertain.

(*b*) Similar to (*a*). Inflammatory thickening of the flexor tendon and its sheath of the left fore foot. For 12 days the

elastic bandage was applied 8 hours daily. A considerable cylindrical swelling appeared, especially of the inner common digital vein. Hot œdema occurred up to the carpal joint. Effect doubtful.

(*c*) Inflammatory thickening of the flexor tendons and their sheaths of both fore legs and peri-arthritis of the right carpus. On the first day the bandage was maintained 7 hours. On the second day the bandage was applied on both fore legs with the accustomed amount of pressure. After a time the horse became restless, pawing with the forelegs frequently, and soon broke into a sweat so that the bandage had to be removed after four hours' application. The horse then became quiet. The animal was kept for a while longer in the hospital with no result.

3. Case of Exostosis and Periostic on the lateral surface of the left metacarpus. Moderate degree of lameness. This case is of no value, but is interesting from the fact that the animal tried in every way to rid himself of the bandage. The attendant observed that the horse absolutely would not wear it. By pawing, stamping and nibbling, the horse tried to rid himself of the bandage. Being tied short, he broke loose and tore it off with his teeth. Treatment was therefore discontinued.

4. Newfoundland dog with Gonitis destruens (inflammation of the knee. The superficial veins were considerable swollen. The bandage frequently became loose on the thigh. With the bandage in place the dog did not attempt to rest weight on the foot. No results.

In looking over our observations with regard to the significance and merit of the Bier's treatment in the cure of animals, I came to the following conclusions:

I. The suction devices can be used best in cases of small animals suffering from affections of the paws. In case of inflammation of the claw-matrix, or a cellulitis in the lower portions of the extremity after penetrating wounds, etc., a cylinder-shaped suction apparatus could be employed. During the treatment the animal has to be securely tied on a table adapted to this purpose. On this point I have no cases of my own to report. In the larger

animals this apparatus can hardly be used either on the extremities or trunk. In that case one can have made from unbreakable material a kind of boot (Junod's boot) which can be fitted to the leg by an India rubber rim. In any event there is a great deal of research to be done in the case of inflammatory processes of the hoof, peripheral joints and tendon sheaths.

II. The rubber tube or band can be used in any case to cause passive hyperæmia (according to Riedl, a layer of gauze should be interposed in the treatment of man), but the following difficulties arise:

(1) Many animals bear the bandage poorly even when not unusually tight. They paw and stamp and try to tear the bandage. Thus the bandage may become too loose or too tight. The animal may be kept from biting at the bandage by being tied short, but nothing can be done to prevent the stamping and pawing. Bier says that the bandage must not cause pain. Now the question arises as to whether the actions referred to above, when occurring, should be regarded as signs of pain or not. To many animals the bandage is merely vexatious without causing real pain. It is an unusual feeling (probably paræsthesia in some cases) which one can observe in otherwise applying a bandage to a horse. The majority bear it well.

(2) In two cases unfavorable signs occurred. The animals became restless, broke into a sweat and showed acceleration of the pulse and respiration. In these cases the bandage was apparently not tighter than usual. After removal of the bandage the horses again became quiet. It being necessary for the attending physician to keep close watch on the human subject during treatment, it is doubly necessary in veterinary practice. For, on the one hand, the bandage may by the movements of the animal become pushed to one side or too loose, or may again become too tight so as to cause not only gangrene of the skin but even serious injury to the parts below the bandage.

(3) The amount of pressure to be used cannot be absolutely designated. The degree of pressure must be made to suit the individual. That is very difficult in horses. I have used the plan

of inserting my left index finger under the bandage when it was buckled on and thus satisfy myself as to the tension. It is thus a matter of practice and experience as to how tight the bandage should be given case. For that reason I always apply the bandage myself. The pressure must vary in different cases according to the thickness of the hair, the skin itself and the development of tissues beneath the skin, or in whatever way individuals differ from each other.

In spite of all precautions there occurred several times an annular superficial necrosis of the skin in the place where the bandage was applied.

According to Danielson there may be used as regulators of the tension the pulse in the limb distally to the bandage, the red color and the warmth of the limb outside the inflamed area, which must be increased by the congestion. These may be made out by comparing the treated limb with the opposite one. If it is not possible to obtain the right tension at once remove the bandage and try it a second or third time. Bier desires a positively warm œdema since a cold œdema may be dangerous. It is possible in most cases to feel the pulse distally to the bandage. Nevertheless in case there is a considerable amount of œdema during the course of the disease or if there is a congestive œdema due directly to the bandage, it is difficult to find any pulsation of the artery digitalis communis so that one may be in doubt as to whether or not the bandage is too tight.

In establishing the desired "fiery red," we meet with another difficulty in animals. The change of color cannot be seen on account of the pigmentation of the skin so there must necessarily be some area on the limb under treatment which is free from pigment if we are to use this sign. Better success is obtained by observing the greater fullness of the superficial veins. The increase of temperature in the part can be relied on and is at the same time the only safe guide in the treatment of horses. It is not always possible even by repeated bandagings to obtain a warm œdema. In single cases there was no œdema at all; in

others no appreciable increase in temperature. However, Bier held that these cases were not suitable for his treatment since the inflammation had already passed the highest stage.

4. The choice of cases thus makes a great difference since quite frequently the severe cases, after being treated for a long tim by other methods, had been sent to the hospital on account of the severity of the condition and at time when the inflammation had passed the highest stage and a subsequent general destruction of tissue had occurred. Naturally our clinic treated a great variety of cases, but in many instances it seemed that the treatment had been tried too late.

V. Bier's stipulation, that the bandage must be as far from the seat of trouble and as near as possible to the shoulder or pelvic girdle, is confronted by extreme difficulty in the case of the larger animals on account of their anatomical conformation. The humerus lies completely on the thorax, and the femur is closely joined to the pelvis and covered with great muscles so that application of a bandage or compress here is out of the question. On the foreleg the bandage cannot be applied higher than the elbow joint, and on the hind leg not higher than the upper third of the tibia.

Riedl has applieod the bandage in case of human subjects, in the immediate vicinity of the seat of trouble and obtained favorable results, so it would appear that Bier's postulate need not be adhered to absolutely.

In treating animals it is impossible, as said before, to carry it out, although in dogs it can be very nearly accomplished since in them the bandage can be applied to the thigh and so include the knee in the treatment.

In one case (stonegall, Case 3) it appeared that the increased œdema hastened the loosening of the hoof from the matrix so that the way was prepared for sloughing of the hoof. Should further experiments show that this occurred more often in cases of suppuration in the navicular cushion, in subcoronary phlegmon, and especially in those cases affecting the hoof, then these af-

fections must be regarded as contra-indications for the obstructive treatment. But it is these very cases in which a safe method is desired.

I accomplished the treatment by means of an elastic bandage a metre and a half in length provided at both ends with a pair of tongs. After the bandage had been applied it was firmly secured by tying the thongs of one end to those of the other. Clamps may also be used. There is a great deal of wear on the bandage, and if one of the edges becomes torn it is impossible to prevent a complete break. The rubber bandage can be protected by one of cloth laid over it. Riedl says merely cloth bandages tightly drawn give very good service, so one need not use the expensive rubber bandage.

The location of the bandage must be changed. We placed it one day on the metacarpus, the next on the forearm above the chestnut, which latter holds the bandage upon the conical forearm. On the hind leg we applied it one day below the hock-joint, the next day at the middle of the tibia.

In summing up my experiences I would say:

The purulent inflammations of joints and tendon sheaths, and phlegmonous processes of the hoof, promise a very good field for this method.

The number of diseases which can be thus treated is less in veterinary practice than in human medicine. It happens that the greatest class (that of acute osteomyelitis of the bones of the extremities) falls almost completely without its sphere just as does gonorrheal arthritis, affections of the tonsils, abscesses in the oral cavity, carbuncles, etc. Although so limited in veterinary practice there is still great hope and expectation to be placed in this method.

The difficulties at present in veterinary practice are great, owing to the lack of technique. In any case we must not be restrained by these from proceeding in the right way.

Even if results have appeared in several of our cases, still the expectation has not been completely fulfilled.

It is acknowledged that we have not mastered the technique, and the choice of cases was not discriminating enough. Therefore it is to be expected that with the perfection and extension of our technique, more favorable results will be seen and that further experiments will be in order.

For the above reasons this method is limited to cases in which constant control is possible, and even then is attended by numerous difficulties. For country practice, ambulatory cases, and polyclinics, it is at present impossible.

It can never attain the efficiency and extent which it already has shown in human medicine.

The saneness and merit of the method cannot be doubted, as is made clear in the exhaustive literature on the subject and as has been shown by the experiments here reported.

Those cases of experimental infection of laboratory animals and the effect of the obstructive treatment on them cannot be convincing evidence of success without cases of natural infection occurring in practice or under treatment at the clinic, because they are entirely different in nature. If this method according to Bier is to elevate the plane of veterinary knowledge by first building up its technique, then his monograph has an especial value for us, because he has given us well-founded explanations of the method of action of the derivatives, as we have seen in the first part of this treatise.

Bier believed that the action of the derivative depended in the first place on hyperæmia (congestion). To it also be ascribed the following properties:

1. A pain-relieving effect.
2. The power of destroying or weakening the bacterial action.
3. An absorbing effect.
4. A dissolvent action.
5. A nourishing action, especially favoring regeneration.

Since the derivative method plays so great a part in veterinary practice, we must be thankful for these well-founded explanations of this old, respected treatment.

Zschokke, in his splendid work on the action of the derivatives, maintained that the stimulus which the derivative set up was a nutritive and formative one in Virchow's sense, when he said: "The after-effects of the derivative consist, as I believe, in a stimulation of the cells in some way; by arousing nutrition, and stimulating formation." And again, "Where the healing process is a long one, and thus a considerable differentiation of fibroblasts is necessary (in tendons, ligaments, and bones), the retarded result is explained as follows: That the cells are stimulated and aroused, but that the regeneration of cells to the point of complete differentiation still requires an unusually long time." I agree with him, but do not like to completely deny the value and aid which the hyperæmia appears, according to Virchow, to give to the action of the derivatives. I believe the two views can be harmonized so that they both may stand.

Bayer and Eberlein both point repeatedly in their work in hydrothermo regulators to the significance which hyperæmia has as a favorable factor in different processes.

RIDING CLUBS IN KANSAS CITY.—Riding clubs are the "new thing" in Kansas City. Two quite large clubs have recently been organized, and there are a number under formation. It is a daily occurrence to see a cavalcade of 50 or 60 ladies and gentlemen coursing over the boulevards of the city. This renewal of an old-time means of pleasure and healthful exercise has stimulated an active demand for a high quality saddle horse, and the horse-dealers in that city are realizing a brisk business in all the better class of horses.

INCREASED FACILITIES AT MCKILLIP.—The contract has been let for the building of a new pathological laboratory for the McKillip Veterinary College. The laboratory will be 35x50 feet in size, well lighted and commodious in every respect. The equipment will be so arranged that both the pathological and the bacteriological laboratory work will be done in it. Orders have been placed for new equipment for these laboratory courses. Thirty new microscopes with one-twelfth objectives will be added to the supply of instruments now possessed by the college.—(*Journal McKillip V. C. Alumni Association.*)

AUTOMATIC METHOD OF ERADICATING ANIMAL TUBERCULOSIS.

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Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, U. S. Department of Agriculture, shows in his last annual report issued in January of this year that about 430,000 tuberculous hogs were discovered by the federal inspectors during the fiscal year of 1907. Of this number about 64,000 were so badly affected with the disease that no part of them complied with the Pure Food Laws, and were therefore of necessity removed from our meat supply. The remainder were considered bad enough to condemn "parts" alone, and the "part" usually consists of the head and neck of the animal, averaging a loss of at least fifty cents each, besides making the rest of the meat of the animal come from one that could not be said to have come from an absolutely healthy animal. This 430,000 is an immense and sudden increase over the number of tuberculous hogs discovered in the fiscal report of 1906, and to one who was not conversant first hand with the history of U. S. inspection would at once conclude the disease had increased that much during the year. The real facts are that better methods are now in vogue in all the packing houses than were a few years ago, and furthermore it is uniformly so. The federal inspectors in Maine and St. Paul are now conducting their inspection by precisely the same methods and under practically the same favorable facilities as are the inspectors in San Francisco and New Orleans. Besides this a very large number of additional establishments now have inspection. As a result it is practically impossible for a tuberculous animal to pass by a federal inspector to-day. Formerly more or less numbers did, making comparisons of different years therefore of no value. While, of course, all authorities agree the disease is on the increase, the apparent increase in the government statistics are misleading and represent

sporadic gradual improvements of inspection methods and facilities, until the Act of June 30, 1906, which created like conditions everywhere. For instance, if a hog has any tuberculosis at all the filtering lymph glands of the head will show in more than 95% of the hogs, and about half of the tuberculous hogs have absolutely no other diseased parts except these glands. The writer had been inspecting heads in one city for about two years, when he was transferred to another city which had had federal inspection for several years, but no head inspection of hogs had ever been conducted. Was transferred after six months to another city where head inspection had been inaugurated only three months prior, and a transfer one year later to another city showed head inspection had been inaugurated still later. Some packers' natural arrangements offered poor light to observe lesions, and others better. At that time two packers might buy exactly the same hogs, and in one house every tuberculous hog be detected, and in the other less than half be observed even. So, not until June 30, 1908, will this country have reliable figures upon which to accurately base the increasing or decreasing percentage of the disease. But be that as it may, the important question confronting us in this progressively economical age is: Could tuberculous germs have been prevented from entering these 430,000 hogs setting up the disease in the varying degrees that caused the depreciation of all and the complete exclusion of 64,000 hogs?

Recent federal and state experiments show that tuberculous cattle, especially cows with pulmonary consumption, cough up germs into their mouths where they are subsequently swallowed (for who ever saw a cow spit or vomit) just like the cud. Some of these germs pass through the walls of the intestines into the blood vessels and from there to a new place in the cow's lungs. She harvests a crop of germs, but plants them again the same day. But the most of the germs pass out of the intestines with the manure or fæces. Experiments show that as many as 37,000,000 tuberculous germs can thus be passed out of one cow in one day. Any small particle may then contain an immense

number, and when dried may become a part of the dust that may later fall in the milk pail and reach the consumer.

Tuberculosis is an unpleasant subject and so are some of its important facts. Hogs find much nutrition in the fæces of cattle and consequently devour them greedily, and farmers take advantage of this fact and encourage it by turning hungry hogs into such environments. Because hogs have been removed from their natural, free, roaming conditions and been placed in small pens with lots to eat, they have deteriorated physically, and, taking on large quantites of fat, are to-day considered the most susceptible of all animals to tuberculous germs. Therefore, hogs associating with tuberculous cattle that are scattering tuberculous germs as above indicated can hardly help becoming more or less affected according to the number of germs given off, and therefore proportionate to the degree of dangerousness of the cow. Stopping right here for a moment, every intelligent reader could do some reasoning on the facts just given, and possibly evolve an automatic plan for locating the dangerous tuberculous animals.

On nearly every farm hogs and cattle associate in the same pens and pastures to a greater or less extent. Most hogs are ready for market within one year after birth. The bulk of hogs are slaughtered in packing houses having federal inspection, where every single hog is given two thorough examinations for tuberculosis. During the fiscal year 1907, 430,000 hogs were under contaminating conditions on the farms from which they came, and the milk and milk pails are exposed to the same dangerous conditions on these same farms. Assuming that these same farmers are raising an equal number of hogs this year, then 430,000 living hogs are at present exposed to the same contaminating conditions on these same farms and when marketed make up the bulk of another 430,000 tuberculous hogs. Under present conditions the federal inspector discovers a tuberculous hog, but has absolutely no idea where the hog originally came from, for all hogs look alike after the hair is removed and the head cut across.

REMEDY.

The enaction of a law, by which the U. S. Department of Agriculture shall purchase and in co-operation with the State Experiment Stations distribute metal tags to the farmers. The tags to bear either the name and address of the farmer or a systematic letter and number system in the numerator and denominator of a fraction, showing state, county, township and farm, $\frac{N\ 40}{15\text{-}435.}$ If one wants to find anything in a book containing miscellaneous information, they know the pages are numbered and the information indexed. Tagged tuberculous hogs are an index to the dangerous tuberculous premises. These premises could then be controlled and the dangerous tuberculous animals eradicated. Within one year 430,000 less tuberculous hogs would come to market.

Any cow which will scatter tuberculous germs in sufficient numbers to affect associating hogs is a dangerous animal because she is scattering germs. General compulsory tuberculin testing is the method necessary to completely eradicate animal tuberculosis. On the other hand, compulsory tagging of hogs is the method of eradicating every dangerous tuberculous animal with which hogs associate. At any rate preliminary data would be secured concerning the extent and distribution and, therefore, approximate appropriation necessary to eradicate it. Blanks sent quarterly to the farmers as applications for tags to apply to animals born during the past quarter would give us a perpetual live stock census, besides the ownership tag.

There is just as much justice in selling live animals on their real merits as in making it compulsory that their products shall be so, and so only, sold. The government can carry out a law affecting the interstate centripetal channels of trade as well as the interstate centrifugal channels. If the nation and the states appropriate sums that are inadequate to compensate the owners for destruction of these tuberculous germ manufacturing animals, then it must seem a profitable investment for the packers of this country to co-operatively invest the remainder necessary

to completely eradicate every living tuberculous food animal, and therefore cease buying 430,000 tuberculous animals every year. But the greatest good will come to the people, for if every tuberculous animal would be eradicated it would solve the municipal and country meat and milk supply problem as far as tuberculosis, the greatest danger, is concerned. There is positively only one side to this question, for it is for the best interests of every one and is not antagonistic to a single soul on earth.

THE Senate has passed the bill to establish a "permanent bison range" on the Flathead Indian Reservation in Montana. This range is to be enclosed and become the home of the largest herd of the buffalo now in existence. The range contains 12,800 acres and the buffaloes numbered around 400 head at last accounts.

CRUELTY WOULD DEFEAT PURPOSES OF VIVISECTION.—In the course of an address on vivisection delivered before the newly-organized Woman's League of the State of New York held at the Waldorf-Astoria, May 16th, Dr. Simon Flexner, President of the Rockefeller Institute for Medical Research, is reported as saying:

"I am myself an experimenter on animals. As a professor in two universities I experimented on many animals, and as President of the Rockefeller Institute I have had the supervision of experiments on many more. In twenty years' experience I have never seen one animal subjected to cruelty. If cruelty were necessary I should regret it, but I should admit it. *Cruelty would defeat our purposes by destroying the precision which is so essential to success.* Some of the most important advances in science have grown out of experiments of an academic character whose ultimate end could not be foreseen.

In meningitis cases the lives of ten persons have been saved for every monkey sacrificed in experiment. No legislative body can frame measures that will not hamper the progress. The tuberculosis problem has been practically solved. Tumors and cancers will come next. Rats and mice have these diseases in a degree hardly different from that found in human beings and can be experimented upon with advantage."

OLD WASH AND THE NERVOUS GOATS.*

"I never had much use for goats," said Old Wash the other night, "an' I got less use for 'em now than ever. They may be as good to eat as sheep to some people, but when I hears a man say dat, ef he's white, I looks for his head to be all cymling and his foots all giblets, an' ef he's black I looks for blue gums an' wropped hair. Ever' now an' den, dey gits up a goat craze in de South an' dese city men whut edits farm papers in cities tells whut a pow'ful lot uv money dey is in goats. After tellin' how dey eats up ever'thing nuthin' else will tetch—not even barrin' a carryon cro'—an' can live an' prosper on a dry spot so nigh de wicked place dat nuthin' else cu'd live dere wid col' feet unless dey walked on stilts, dey den proceeds to tell how fast dey can prop-a-gait, which is a big word dey uses to tell how soon an' nachully a little sissy kid goat gits to be a nanny.

"It ain't often I drops into poetry, but heah is de way I figures it out:

Two little goatses, out in de sno'
Dey gits married an' den dar is fo'.
Fo' little goatses longin' to mate,
Bare is de larder, but soon dar is eight.
Eight little goatses, weeds, an' no mo'—
Weeds is for true love an' now twenty-fo'.
Twenty-fo' goatses climbin' de gate,
Ever'whar dey oughtn't be—now eighty-eight.
Eighty-eight goatses, all in de corn,
Still studyin' 'rithmetic—two hundred's born.
Two hundred goatses on house top an' tree—
Dey drops six hundred by de rule uv three!
Six hundred goatses, locustin' de land,
Living on lizards, love-knots and sand,
But sand is deir manna—dey marry ag'in,
Now sixteen million, nine hundred an' ten!

*Many of the REVIEW readers were present and no doubt still remember the "Nervous," "Stiff-legged," or "Fainting Goat" which was presented by Drs. White and Plaskett, of Nashville, Tenn., at the clinic of the American Veterinary Medical Association—St. Louis meeting. They will also recall an article which appeared in September, 1904, issue of the REVIEW, giving the history and a description of this goat. Since the accompanying story, which appeared in *The Taylor-Trotwood Magazine*, is amusing, especially to those who are familiar with the "Fainting Goat" as well as the "old time negro," we believe it will interest many REVIEW readers. Although this is only a story, Drs. White and Plaskett vouch for its correctness in describing two freaks of the South—Fainting Goat and Negro.

" Did you urver notice, Marse John, de turrible hard slam de Bible gives de goatses An' when de Good Book tags a thing it's dar for all eternity an' warranted not to fade. Of all de animules in de ark, snakes an' goatses is de only things dat is under de ban. You know whut de snake done—tempted Eve, an' de rest of us been stayin' in after skule ever sense an' takin' our spankin'. But de way it throwed off on de goatses wuz wusser still, fur it laid every low-down white-livered thing that happened on de goatses. Whenever a ole Jew had done sumpin' specially low down' an' wanted to lie out uv it hisse'f, he'd rub asserfeterty an' gypsy juice on some goat an' start him th'oo de wilderness. Dey call him a scapegoat because dey thought he orter be thankful to 'scape wid his life, seein' he kerried so many other fo'kses sins on his back. An' de smalles' white man in all history, in my 'pinion, is dat ole 'sateful, oily Abraham dat had thousands uv goatses an' yet made a scapegoat uv his own son an' turned him out in de wilderness to die. I preaches 'gin him ever' chance I gits an' when I die I don't wanter go to no Abraham's bosom. No, suh, I'd ruther take my chances whar dars sum wool an' a warm spot! Hit looks lak ole 'sateful Abraham cu'dn't keep away from goatses—always doin' sum devilment an' layin' it on goatses. But a man buys back ever' rascally trick he sells to others at las', in his own coin, an' so ole Abraham got his back in a goat. It wuz when dat boy Ikey uv his'n fooled de ole man an' got Esau's birthright 'cause Esau wuz nachully a hairy one—(no wonder, his daddy had goat on the brain all his life!)—an' Ikey, who wuz smooth, he jes' put on a goat skin an' made de ole man think it wuz Esau. When he found it out I'll bet he thort uv Hagar an' Ishmael dat he played it so low down on.

" Oh, you kin jes' bet a man gits whut he sows in dis worl'.

" When ole Abraham tried to turn his little innocent but onregistered boy into a scapegoat, he nurver thort his big boy Ikey, so godly an' so circumsized, would bob up an' be de real thing at last.

"Ole Abraham started de thing an' all de others kep' it up an' all th'oo de Good Book de sins uv de world is laid on goatses. Dey even studied it out fur de Jedgment day when dar'll be a big separashun uv de sheep an' de goatses, an' all sinners will be turned into goatses. This allers struck me as correct, for dere is jes' about dat much difference 'twixt a game, ole, naughty, bad-smellin' sinner an' a weak, no-'count, sissy, *bah-bah,* goody-goody!

"An' it's all in favor uv de goat!

"Es fur me, give me a goat over a sheep ever' time. A goat smells bad to some fo'ks, but he'll hustle for his own, is dead game, don't complain, 'tends to his own business, ain't stuck up an' is a pow'ful ladies' man. You nurver heah of a goat-killin' dog—no, sah, but I've seed a many a dog-killin' goat. An' he best way to save a flock uv cowardly sheeps is to put a few billies in amongst 'em. But a sheep—de thing we Christyuns is picked out es emblem of all dat's good an' holy, Marse John, it's a shame! He's a meek-faced, flop-eared fool, so silly he'll jump into a bottomless pit ef his nigh neighbor happen to fall in, an' so cowardly any yaller cur can chase an' kill de whole flock. Whilst his big horns an' stiff neck is puttin' up a bold game of bluff, his slinkin' limber tail, floppin' betwixt his legs, is doin' all it can to lie out of it! Dey ain't got sense enuff to keep a crow offen deir babes when born, dey hunts fur all de soft spots in de pasture an' dey quits to anything dat gits a good holt on dey wool. Don't put up no lamb on my tomb when I'm gone, Marse John. If I've got to be pictured an' disgraced as a animule an' a nachur faker after I'm dead an' it's a ch'ice 'twixt de goat an' de sheep, carve for ole Wash a game ole goat, wise unto salvashun, keepin' his own council, speakin' no evil, stickin' to de middle uv de road—a good ole prop-a-gaitin' populite, whiskers an' all!

"Yassah!

"But I started out to tell about dem nervus goatses. I lives down nigh Marse George, an' he's got a flock uv dem goats, dat run in de pasture wid de fine mares. You know brood mares

nurver gits sick if a goat stays among 'em, fur de smell uv de goat is so servigrus, dat whenever a microbe uv eny breed gits a good whiff uv it, he des' gasps an' smiles an' dies, as de poet sez uv de hero soljer. An' so Marse George he keeps dem goats wid his mares, an' do' he 'low us to go thoo any other part uv de farm, he don't 'low nobody to make a common passway thoo de paddock. But de other Sunday es I went to preachin' I wuz late, an' thinkin' Marse George wouldn't keer dis time I tuck a short cut thoo de paddock. I seed de flock uv goats an' de mares an' colts but I wuz so busy wuckin' out my sermon, de tex' of which was, *'And he separated de sheep frum de goats,'* dat I run ober a kid asleep in de grass befo' I seed it. *'Bah-bah,'* sez de kid, jumpin' up so sudden 'twixt my legs dat I jumped two feet offen de groun'. Den I gin him a kick when I hit de yearth, clap my hands to make him run an' sed, *'Bah-bah, yo'se'f'!*

"Wid dat ever' goat dar started to run, but jes' hollered *bah-bah* an' drapped dead!

"An' when I seed whut I'd done I mighty nigh done it myse'f.

"I started on a run fur de fence, but looked back an' de groun' wuz jes' kivered wid goats kickin' an' stiffenin' out an' dyin'. I 'spected to see de mares an' colts tumble nex' so I makes a break over de fence an' over de hills back home.

"No mo' sermon fur me dat day. I'd seed all I wanted to see about goatses, unless it wuz how to raise 'em frum de dead.

"I kep' hid out all day, wonderin' ef anybody seed me. All night I dreamed uv goats—dreamed it wuz de last great day, dat Marse George wuz de great Jedge, an' when my time come I wuz cast over among de goatses. Dey had all des' riz to be jedged, but at sight uv me dey all drapt dead ag'in, jes' like dey did in de paddock, hollerin' *'No, bah-bah, no. He too mean to live wid us.'*

"Sho' nuff, at breakfus' heah cum de sheriff, an' reads me a writ an' takes me to de jestice cou't.

"I nurver had been 'rested befo'. I wuz scand'lized an' ruined, all by a lot of goatses. I axed 'em to let me see you, dat you'd go on my bond, but dey dragged me befo' de squire.

"You nurver seed sich a trial; ever'body wuz dar, an' de trouble I wuz in seem to give gener'l satisfacshun. De Majah he spoke ag'in' me, tellin' de jestice dat I went into de paddock an' kilt de whole flock uv goatses. *'He wuz so tarnal ugly dey all drapt dead at sight uv him,' he say.* He kep' dat an' some mo' up fur a hour, an' he had de whole cou'thouse, jedge an' all, a-laffin' at me. I nurver seed fo'ks hab so much fun an' I nurver felt so mean an' lown down. De Majah 'splains it wuz a flock uv ve'y unusual goatses, called Nervous Goats, an' dat dey wuz wuth a hundred dollars apiece, an' he figured out dat I owed Marse George des' five thousand, six hundred dollars an' de state pen two years hard labor fur trespass!

"Wid dat I jes' gib up. I'd figured dat ef it cum to de wuss dey wuz wuth 'bout two dollars each an' I knowed I cu'd sell de filly an' pay dat. But dis jes' ruint me. I wanted to die. I wuz willin' fur to sell all I had an' pay up, but de Jedge sed I'd hafter make a speech an' 'splain how it wuz or he'd hafter gin jedgment fur de amount an' hang me afterwards. Hit looked lak dey wuz gwine to make it es miser'bul fur me as dey cu'd so I done de bes' I c'u'd wid a heavy h'art.

"'Marse Jedge an' Gen'lm'n,' sez I. 'I'm a ole nigger, dat hab libed a godly life gwine in an' comin' out befo' you, an' nurver got into no trouble befo' till I got tangled up wid dat ar lot uv goatses in de paddock an' I think dis wuz de same breed dat will be on de Lord's lef' han' at de jedgment morn. Dey am na'chully de chillun uv darkness an' dis heah wuz a put-up job on me fur to make me furgit my sermon an' do de debble a good turn. Gen'lm'n, when dem goatses all drapped dead on me, don't you kno' I wuz des' as skeered as dey wuz, an' de only reason I didn't drap too wuz because I didn't stop runnin' long enuff? I wuz in de same fix dat Marse Jack Reeves, uv Hardeman County, wuz when he got drunk, missed his train an' wuz put in de same bed by de landlord wid a dead man dat had been laid out

in de hotel. 'Bout two o'clock he got sober enuff an' thirsty enuff to take notice an' he heerd two young fo'ks talkin' sweet in de room an' de young man wuz tryin' to kiss de gal. But she said, *'George, you mus'n't try to kiss me whilst we're sittin' up wid a corpse,'* an' den Marse Jack puts out his han' an' feels to see who he is sleepin' wid an' de face he teches wuz marble! He wuz in his night clothes an' it was a race 'twixt him an' de young fo'ks as to which 'ud git to de open air fust. But he 'lowed in de piece he writ about it, dat he wuz des' es bad skeered as dey wuz. Now dat's de way it wuz wid me an' de goatses, gen'lm'n, an' I think I got skeer enuff widout bein' fined an' saunt up.'

"Dis seem to tickle 'em mighty, an' de jedge said dat befo' he would decide he thort it jes' an' right fur all hands to go down to Marse George's farm an' see jes' how many goatses I *did* kill.

"Dis kerried, an' de sheriff handcuffed me an' dey all tuck me down to Ewell Farm, an' I felt 'bout de sheep-killines' dog dat ever wuz. I seed 'em all winkin' an' laughin' es dey went along, an' me a-beggin' em to let me go off an' die. We went to de paddock an' dar wuz anurr flock of goatses, 'zac'ly lak de ones I'd kilt. I looked at 'em 'stounded lak, fur I seed I'd lef' some seed goatses an' knowin' how dey prop-a-gaits, I jes' na'-chully thort dey'd done all dat in two days.

"'Dar is a new flock,' sez de sheriff. 'Now, ole man, des' sho' us des' how you did manage to kill all dem other ones.'

"'Gen'lm'n,' sez I, 'I wuz comin' 'long right heah, a-wuckin' out my sermon, an' right heah,' sez I, 'I steps on a little goat entirely unbeknownst to me, an' he skeers me so I jumped twenty foot in de air, comin' right back down on dat fool goat, dat didn't do nuffin' but dance up an' down, hollerin' *bah-bah,* an' tangled me up so ever' time I step he'd be dar whar I step at. *"Bah-bah,"* sez he, still a-dancin' 'twixt my legs. *"Bah-bah, yo'se'f,"* sez I; *"if you cayn't run, fur Gord's sake git outen de way an' lem me show you how,"* an' den, gen'l'm'n, so he'p he heab'n, I didn't do nuffin' but jes' gin a big whoop an' clap my hands like dis ——.'

"I heard 'em all shout wid fun, an' I looks an' 'fore Gawd, I'd done it ag'in—ever' goat dar had drapped dead

"I broke an' tried to run, dis time to de creek to drown myse'f.

"'Ketch him,' sed de Majah; 'don't you see he is de ole debbil hisse'f? Ketch him; he's a witch.'

"I stood par'lyzed, beggin' 'em to kill me an' den I seed one goat after anurr kick awhile an' den git up es solemn es deacons an' go to eatin' grass es natchul es a grass widder!

"I broke in a big laugh an' shouted an' de squire sed:

"'Resurrection morn, Wash—fust man up fur a mint julip!'

"It wuz all fur fun an' dey had put it up on de ole man scan'lous, but de aftermath wuz fine—a shady grove, a good barbycue uv dat very kid dat had skeered me so, watermillions an' mint julip!

"But I nurver 'spects to heah dem white fo'ks tell de las' uv it an' na'chully I keeps shy uv nervous goatses an' nervous fo'ks uv all kind!"

MULES THE WORLD OVER.—South America has 7,000,000 mules, Europe 1,488,000, Africa 280,000, the United States 3,600,000, Mexico 335,000 and Australia only 1,000. The average value of a mule on an American farm is $125, and in war time considerably more.

EXAMINATION FOR LICENSE IN NEW JERSEY.—The State Board of Veterinary Medical Examiners of New Jersey will be in session at the State House, Trenton, N. J., June 26 and 27, 1908, for the examination of applicants for license to practice veterinary medicine in that state. Those concerned are referred to table on "Laws Governing Veterinary Practice," May REVIEW, page 244.

MORTALITY OF BULL FIGHTING.—During the past year deaths and injuries among the Spanish bull fighters have been unusually numerous, and in all eighty-two of the profession, including nearly all of the best-known espadas, have received more or less severe injuries. The mortality among the animals has also been exceptional, 2,980 bulls and 2,720 horses having been sacrificed in this way.—(*Medical Record.*)

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

CÆSAREAN OPERATION IN SOWS.*

By Dr. W. A. Heck, West Liberty, Iowa.

Cæsarean section in sows for the removal of fœtuses when normal birth is impossible has always been to me a very interesting subject. My first experience began in 1894, but my first subject died, and I was so intimidated that I did not reattempt the operation for several years. My next effort was more satisfactory, and in the last ten years I have been operating on a great many cases every year. I only wish I had kept an accurate record of all my cases, as now it would be most interesting to look back over my experience for years to see if there has been any marked improvement in my work.

The past year (1907) is the only year I have kept any record at all of my surgical cases of this character, and I now regret that my data is too meagre to admit of its full benefit in this paper. I will give it to you in a general way, mentioning a few individual cases which were of more than ordinary importance, after which I will give you briefly my technique in operating.

In 1907 I operated on 52 cases, two of which were not reported upon, leaving an even 50 to report in this paper. The practical listener is already asking, "What percentage of these did you save?" and I will answer at once to relieve his anxiety that 60% of these were successful and 40% (or 20) unsuccessful.

Of course we are more interested in the ones that died than the ones that recovered, hence my comments will be mostly on those failures. Nos. 2, 3, 9, 15, 18, 33, 43 and 49 were subjects that were rapidly approaching death and should never have been touched with a knife, hence their deaths should not be charged to the operation.

Nos. 1, 7, 8, 14, 16, 28, 30, 34, 35, 41 and 45 were reasonably good cases, but died from various causes, the majority of them from chloroform anæsthesia. No. 23 was a case of

*Report presented to the Iowa State Veterinary Association.

peculiar interest. She was a Poland China of medium size not long in labor. Was called in early evening, but was compelled to work by lantern light, which is always a disadvantage. The patient was badly bloated, and on incision there was such a protrusion of small intestines that I was very much handicapped in my work. Drew off gas by means of hypodermic needle, but notwithstanding the collapse of the bowels I could not progress with any speed, and the result was a bungling operation which terminated in death in two days. It is rare that we meet with such extreme flatulence in the early stages of labor.

No. 28 is an interesting case which clearly illustrates the injudicious use of chloroform. This sow, Poland China of average size, was in labor one night and I was called next morning. Arrived at farm about nine o'clock and proceeded to operate at once. The sow was anæsthetized with chloroform when I began my operation, trusting to the owner to handle the anæsthetic. All progressed well until I discovered, as my work was nearly completed, that the uterus was undergoing a transformation from beautiful pink to a violent blue. I realized at once what was happening, but it was too late. In spite of stimulants injected hypodermically and other means of restoration, the sow promptly died, but I assure you it was an easy death.

No. 24, which is one of the brilliant recoveries, is of very great interest and it is the only case of recovery which I will mention to any extent. This was a Poland China sow, weighing 275 or 300 lbs., that had been in labor over night but without result. The sow was cast and chloroformed and incision made as I usually do, but on entering the abdominal cavity with my hand I found to my great surprise that there was not a pig in the uterus or, on further investigation I found there was a rent in the uterus near its bifurcation, and the dead fœtuses, four in number, had escaped into the abdominal cavity and were floating among the intestines, each nicely attached by means of his navel cord to the placenta, which was still intact in the uterus. The pigs were extracted, the uterus closed by silk sutures, and the owner apprised of the inevitable results; death in a short time. Much to my surprise in a few days the owner reported the sow as all well and doing as well as any of the herd. The uterine contents in this case could not have been septic or septic peritonitis would have been inevitable.

The interesting question arises, When did the rent in the uterus occur? Did it occur from the strong contraction of that

organ before my arrival, or did the exertion incidental to the casting and chloroforming cause it? Of course we will never know; notwithstanding all our theorizing, it will ever remain a mystery. My opinion is the rent occurred previous to my arrival, as on one occasion, when a federal meat inspector, I found in a killing house a mummified pig floating in the abdomen of a sow which had been shipped to market. The evidence indicated that it had been in this strange location several months and doubtless had been deposited there in the same manner as the fœtuses just mentioned.

I have experimented a good deal in operating, varying my technique, trying to determine the most practical method. I have operated on both the right and left side, also on the median line, but my experience last year was confined mostly to one method which seems to be most successful with me. I usually begin by having ready a large tin pail of clean, warm water, pretty warm at first, as it will grow colder as you progress. A couple of tin basins and plenty of silk sutures, needles and a sharp scalpel, together with a clean towel. For the anæsthetic I have ready an old tin quart tomato can with a sponge or a bit of cotton in the bottom. The sow is cast on the left side, and if help is scarce the sow is tied, leaving the right hind leg free to be held by an assistant. The hair over the right flank is clipped with a pair of horse clippers, carried for the purpose, and all loose hair is brushed away. I find the clippers and brush is so much more satisfactory to the scissors both in speed and quality of clipping. The chloroform is then administered and usually it takes a few inhalations to get them under, when I give the can to some assistant to use as I direct. I begin then rapidly to scrub the surface to be incised with hot water and synol soap and a scrub brush. I usually clip a large surface so as to allow of drawing much of the uterus out and not contaminate it by touching unwashed parts. After the parts are thoroughly scrubbed, I wash my hands thoroughly in an antiseptic, and with the sharp scalpel make a bold incision in the skin and muscular tissue down to the peritoneum which will be recognized by its bluish tint. I aim to make the incision quickly without haggling the interlying muscles and of six to eight inches in length, almost vertical, but slanting slightly from the point of the ilium toward the sternum. When the peritoneum is laid bare puncture a small hole with scalpel and then with two fingers dilate to as long as is necessary to admit

the hand easily. Insert hand and at once locate the contents of the uterus, ascertain how many fœtuses are there and how they are distributed, which is a guide as to the procedure of their removal. I usually lift out the top or nearest horn of uterus with its contents and lay them out on the washed skin of the mother and drawing down the horn to its bifurcation make a longitudinal incision in the horn large enough to extract a pig. I usually have an assistant to grasp the pig and extract it, leaving myself with clean hands to manipulate the fœtuses to one opening where the assistant will continue to draw them out. When the pigs are all removed from the upper horn proceed in the same manner with the lower horn, and when all are removed the placenta then is carefully removed, but if it is too tight leave it alone and close the opening in the uterus with silk sutures. I believe the Lembert suture is best, using a round needle.

After the suturing wash the uterus that is contaminated thoroughly with an antiseptic. I have used nearly all of them and like the coal tar products best. When all is disinfected, replace the uterus and close the abdominal wall with strong silk, using the interrupted suture. I would use about four sutures in the outer wound. If the operation is a neat one it will be hard to see the wound in the skin as the parts come together so nicely, and a great many will heal by primary union. Many times the pigs are delivered alive. I have taken ten live pigs from one sow, and it is interesting to see them scrabbling for a dinner long before you have the operation completed. Sometimes one pig alone will be alive, the balance dead, and sometimes there is only one pig remaining to be removed, and in this case the operation is very simple, and I can not remember a failure where I have removed but one fœtus. Where the fœtuses have been dead for some time and they become emphysematous, removal is sometimes very difficult, and in this class of cases I usually remove the uterus by severing the ovaries and ligaments with my castrating emasculator and pulling all the uterus with its contents to the outside and severing the uterus at its posterior part with the same instrument. By this method you get but little hæmorrhage, but I would advise ligating the large vessels to prevent subsequent bleeding. I have had several fatalities from hæmorrhage. My method is to ligate the blood vessels before amputation of the uterus, as the throbbing arteries can be plainly felt and can be easily tied. The

after treatment is to allow them nothing to eat for three days, but allow all the cold water they will drink. Sometimes wetting the external wound with a bichloride solution once or twice a day is advised when it is practicable.

Saving 60% does not look well on paper, but you must consider that too often a farmer will wait two or three days to see if the sow will not get along without assistance save only as he can give her aid, and you may rest assured that no one is ever called till the farmer has exhausted all his resources. Often the sow is so mutilated and torn by the owner death will ensue from these wounds alone, and, of course, our heroic operation is to blame. I have contended for a good many years that if taken in time 80% can be saved, and I am still of that opinion. The delayed and neglected cases are the ones from which we have our greatest losses. I try to impress upon my clients that it is useless to call me after a sow is exhausted from long-continued labor and putrefaction is well established. Still, some of my most brilliant recoveries have been cases where putrid fœtuses were removed and sow had been in labor two or three days. I have heard it said by some veterinarians that it does not pay to bother with the hog practice, and to satisfy those of you who are in doubt I will add the additional information that the total receipts from these 50 cases were $163, or an average per case of $3.27. I always charge $2.50 to $3 if the cases are handy, and mileage if I go in the country, the same as to see a sick case. It will occupy about twenty or thirty minutes' time to do the operation and we usually spend about as much time in making an ordinary call.

There is an added feature besides the fee we get for the work, and that is the prestige it gives one with our clients. If we can do this work successfully there is no operation we do that commands more profound respect on the part of our farmer friends than this one of Cæsarean section.

RUPTURED BURSA.

By Dr. Holton.

Reported to the Minnesota State Veterinary Medical Association.

November 8, 1907, a gentleman called at my office and said that he had a lame mare outside; liked to have her examined for lameness. I examined the animal and found what seemed to be a slight nail puncture at the superior point of the os calcis where the flexor tendons pass over. The animal did not appear

to be very lame. I prescribed mild astringent lotion to be applied externally twice a day; also a creolin solution to wash off wound, and told owner to rest animal for at least two weeks and if leg commenced to swell to apply poultice of flaxseed. But to all appearances the animal got along nicely until November 20th, when he took the mare out and drove her about fourteen miles. When she was taken care of in the evening she was apparently all right. On the morning of November 21st they found her standing on three legs. I was called to attend her and found her to be in very great pain and unable to bear any weight on the leg. At the point of injury I could see oozing forth a small stream of synovial fluid mixed with pus. I immediately diagnosed the case as ruptured bursa. I administered five grains of morphine sulphate and proceeded to examine the wound closely for any foreign body which might be the cause of the trouble. I inserted, very carefully, a blunt-pointed probe. It took a downward course of about one inch, but I could not detect any foreign body. I irrigated wound with a mild creolin solution and applied equal parts of tannic acid and collodion and applied a pad of absorbent cotton and bandaged leg. I left this on for two days. When I returned again the synovia and pus was flowing from wound as freely as ever. I irrigated wound again and applied equal parts of iodoform and tannic acid in the form of a dusting powder, bandaged leg again as before; returned again in two days, but no better results obtained from this treatment. I found an enormous quantity of synovia and pus. I now made up my mind that this treatment was not rational and decided to try a more strenuous method of closing the wound. I made a round firing iron, heated and applied it to the wound, pressing it in as far as it would go. This seemed to have a better effect than any treatment I had as yet administered, but I still had a slight discharge from the wound. I did not call again for four days. I tried firing again—line firing the tendons on each side, and again pressed iron into wound and applied a good strong blister. I bandaged wound with cotton and gauze and allowed bandage to remain on for one week. This seemed to have the desired effect, as the mare commenced to improve. The next time I called the bandages were perfectly dry and I allowed them to remain for a few more days before removing them. The mare now began to stand on the leg, standing on this one more than the one that was not injured. There is a slight swelling yet at the point of injury and on the lateral side of tendons. I re-

moved her from the slings, and, to all appearances, she is as well as ever, showing scarcely any lameness. I might add that this is two of these cases I have had this summer—the other case being opened in the fetlock joint; but both have made a good recovery. I find them very difficult to treat, as the animal becomes very irritable. I do not place animals in slings until they become very tired. At no time did I get a very high elevation of temperature or loss of appetite.

PASTEUR VACCINATION AGAINST RABIES—DOG.

By J. F. PLANZ, D.V.M., Akron, O.

Reported to the 25th Annual Meeting of the Ohio State Veterinary Medical Association.

Saturday, March 9, 1907, we were called to look after a dog which had bitten two boys and several dogs. Upon arriving at the scene the dog was not to be found. After scouring the neighborhood for half an hour we finally caught sight of him coming toward his home. A bulldog stood guard nearby and ran out directly in front of the slowly-trotting cur. Quick as a flash the bulldog was bitten, when the offending canine continued on his way as though nothing had happened. My partner, Dr. Case, finally caught the dog in the owner's kitchen and we placed him in a cage at our hospital 10.30 Saturday morning. The dog died the following Monday at noon, having shown symptoms characteristic of rabies. A microscopic examination of the brain presented lesions considered pathognomonic of rabies. The owner of the bulldog referred to above upon being informed he would have to dispose of his dog came to us for advice. We suggested giving the dog the Pasteur treatment to which he readily consented.

In an interview with Dr. Eddy, of Cleveland, we were informed that the Health Department treated people bitten in Cleveland, obtaining the virus from the Experimental Laboratory in connection with the New York Health Board. We concluded to treat the dog at our place, and immediately wrote to the Experimental Laboratory, stating the condition of dog, age, weight and nature of wounds. The first dose arrived promptly by special delivery, followed each day by the dose for that day. The dog had been bitten twice, once upon the lateral side of his neck, and once in the lower lip. We cauterized the wounds with fuming nitric acid, but ample time had elapsed for the absorption of the toxic, so we laid little stress upon this

procedure. The injections were made under as strict aseptic conditions as possible, the lateral and ventral surfaces of abdomen being used, no abscess or swelling ever developing. The following is a record of each day:

Date.	Temp.	Pulse.		Condition, etc.
March 16	102.6	90	During the entire treatment appetite was always good.	Homesick, good appetite.
" 17	101.4	80		Nothing abnormal apparent.
" 18	101.3	72		" " " expect bowels loose.
" 19	101.4	72		Condition unchanged.
" 20	101.2	72		" "
" 21	102	90		" "
" 22	100.8	76		Fæces quite mushy.
" 23	101	76		" " "
" 24	101.4	80		Diarrhœa.
" 25	101.5	80		" ceased, still mushy.
" 26	102.2	80		Bowels quite loose.
" 27	101.6	80		Fæces normal.
" 28	101.6	80		Nothing abnormal apparent.
" 29	100.8	80		" " "
" 30	100.8	80		" " "
" 31	101.2	80		" " "
April 1	101.4	80		Somewhat irritable.
" 2	100.7	80		" "
" 3	100	75		Constipated.
" 4	101	76		"
" 5	101.6	78		Normal again.
" 6	101.2	78		Nothing apparent.
" 7	102.2	90		" "
" 8	101.8	80		" "

Two gr. of calomel were given, and after five days as nothing of an abnormal nature appeared the dog was discharged. Think it advisable to administer the virus the full quota of days, namely, 21, known as the intensive treatment, irrespective of the extent of the wounds or locations thereof, which modifies the treatment in human practice, the dog being more susceptible. Up to the present date the dog has been in the best of con-

dition, just as though nothing had ever happened. The experiment proved very interesting and we shall never hesitate to accept dogs for such treatment.

Had two dogs for treatment in August, but was unable to obtain the virus owing to the great demand for it at the time in human practice. After three weeks we were informed it could be mailed again.

APOPLECTIFORM SEPTICEMIA IN CHICKENS.

By WINFRED B. MACK, D. V. M., University of Nevada.

On December 1, 1905, there was received at the New York State Veterinary College, Ithaca, New York, a dead chicken. It came by express from Lake Placid, Essex County, New York. The owner had lost a considerable number of fowls, and sought a diagnosis and advise. The dead bird was turned over to the writer, who at the time was assistant in the Department of Comparative Pathology and Bacteriology, for examination.

Autopsy.—Adult hen in fairly good condition. The mouth contains blood-stained mucus. The intestines and liver are covered with coagulated exudate. The abdomen contains a considerable quantity of sero-sanguinous exudate. The liver is enlarged, pale and very friable. The abdominal and thoracic viscera are deeply congested and present a peculiar yellowish discoloration. There is a thick fibrino-sanguinous exudate covering the lungs and heart. No hæmorrhages observed.

Smeared cover-glass preparations were made from the exudate, lung, heart's blood, liver, spleen and kidney, stained with alkaline methylene blue and examined. All showed numerous short chains of streptococci.

Pure cultures of a streptococcus were obtained in bouillon and slant-agar tubes from the exudate, liver, spleen, lung and heart's blood.

Inoculation Experiment.—December 2d, at 3.00 P. M., an adult fowl was inoculated subcutaneously with 0.5 c.c. of a 24-hour bouillon culture from the heart's blood of the above-mentioned fowl. At 4.00 P. M., December 3d, she appeared well. At 9.00 A. M., December 4th (forty-two hours after inoculation), she was found dead and had apparently been dead several hours.

Autopsy on Experimental Fowl.—The liver is enlarged and friable and presents the peculiar pale yellowish color noticed in the original subject. The lungs are somewhat congested, the pericardium is filled with sanguinous fluid, the auricles are distended with black, coagulated blood.

Cover-glass preparations, made and stained as above, show short chains of streptococci, very numerous in the lung, heart's blood, liver and spleen; some in the bile, and a few in the brain, muscular and cellular (connective) tissues.

Cultures were made from the liver, spleen, kidney, pericardial fluid, heart's blood and brain of this fowl. These cultures were examined macroscopically by another person and reported to us as positive, but were never examined further except that some weeks later subcultures were made, but they did not develop, the organism having died meanwhile. Owing to the writer's serious and prolonged illness, this work had to be abandoned and the material was lost.

Appearance of the Organism.—In bouillon cultures there is no turbidity, but small flocculi adhere to the glass at the sides and form a sediment in the bottom of the tube. In cover-glass preparations made direct from the tissues, stained with alkaline methylene blue, and in one made from a twenty-four hours' bouillon culture, stained with carbol-fuchsin, it takes the stain readily and uniformly. The organism is spherical, from 0.6 to 0.8 microns in diameter. In the tissues they are united in pairs and in short chains. In culture they are similar, except that a few masses were observed where the chain formation could not be detected. For the most part they occur in chains of from two to six individuals. A few chains of eight are found; rarely any longer than eight.

In 1902 Nörgaard and Mohler[1] reported a serious outbreak of an acute disease among chickens from Loudoun County, Virginia, due to streptococcic infection, to which they gave the name Apoplectiform Septicemia. This appears to be the only description of the sort on record.

Although our work consists of the examination of but a single case, and of but one inoculation experiment, it is sufficient to demonstrate the existence, at that time, in Northeastern New York, of a disease quite similar to Nörgaard and Mohler's, probably identical with it, and to suggest the possibility that it exists

[1] Nörgaard and Mohler. Apoplectiform Septicæmia in Chickens. Bulletin 36, Bureau of Animal Industry, U. S. Department of Agriculture. 1902.

in numerous localities without having attracted scientific attention.

It is to be regretted that this outbreak could not have been followed up carefully and completely, but for the reason above mentioned, the writer was unable to do so, and, owing to the pressure of work in the laboratory at that time there was no one to undertake it until the cultures were dead. However, although but little work was done, it seems of sufficient importance to warrant publication.

RECOVERY IN SERIOUS SYNOVITIS CASE.

By Dr. C. A. Barnes, Forest City, Ill.

Reported to the Illinois State Veterinary Medical Association.

A sorrel western mare, weight 950 lbs.

History.—Jumped over a barb-wire fence, cutting deeply into left hock joint. On examination a couple of hours later found a stream of synovial fluid trickling down on either side of the limb and a nearly circular opening not much lacerated which was large enough to admit of two fingers being passed directly to the naked articular surface of trochlea on front of the hock; the limb hung almost limp and straight as it would if broken; wound seemed fairly clean.

Treatment.—Applied a good biniodide of mercury blister to entire surface of hock anteriorly; then, as there was synovia still flowing freely, I applied a small quantity of pine phenic acid crystals directly into the opening over which was placed a heavy coating of granulated sugar and a good retentive dressing. This was allowed to remain till the morning of the third day when I removed it and found only a very small place showing signs of a slight ooze of synovia, when I again applied biniodide of mercury ointment directly to the spot and another retentive dressing, and after three days more found hole well closed and wound doing nicely. Mare made a good recovery with no scar to speak of and only a stiffness of hock resembling that of a mild case that has made good recovery from firing for low spavin, with limb a little straighter than its fellow.

Going to law is losing a cow for the sake of a cat.—(*Chinese Proverb.*)

ARMY VETERINARY DEPARTMENT.

INCREASED PAY FOR ARMY VETERINARIANS.

There has been rejoicing and celebrating throughout the army at the news that the Army Pay Bill had been passed by Congress and signed by the President on May 11, 1908, on which day it went into force. The bill carries a substantial increase of pay for the officers and enlisted men of the army, and the veterinarian, having by law the pay of a second lieutenant, benefits by its provisions accordingly.

The pay for the month of May is a split pay, best left to be figured by the paymaster himself. Below is the new schedule of pay beginning with June, 1908, giving the five different grades of pay for veterinarians, according to length of service, and whether owning one or two serviceable mounts or being mounted at government expense, per year and per month:

Pay of Second Lieutenant.	Flat Pay.	After 5 Years.	After 10 Years.	After 15 Years.	After 20 Years.
Pay per year.....	$1,700 00	$1,870 00	$2,040 00	$2,210 00	$2,380 00
Pay per month.....	141 61	155 83	170 00	184 17	198 33

Owning one horse, add $12.50 per month ($150 per year).
Owning two horses, add $16.67 per month ($200 per year).

Although the army veterinarian still draws the lowest pay among officers, which is entirely out of proportion to his expenses and services rendered, yet this increase in pay will be a welcome contribution towards defraying the monthly expenses in the homes of our married veterinarians who are greatly in the majority. We heartily congratulate our army colleagues on the enactment of this law, which in a measure compensates for the sure failure of the Army Veterinary Bill during the present session of Congress, which, at this writing will close in about one week, leaving no hope for its passage. O. S.

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PERSONAL ARMY NOTES.

Dr. Burt English, 2d Cavalry, Fort Des Moines, Iowa, will enjoy a two months' vacation, beginning with June 15, 1908.

Dr. Olof Schwarzkopf, 3d Cavalry, officiated as judge in the classes of three-gaited saddlers and hunters at the San Antonio Horse Show, May 13-16 inst.

Drs. L. E. Willyoung, 1st Field Artillery, Fort Sill, Okla., and Schwarzkopf and Mitchell, 3d Cavalry, will join the military manœuvres at Leon Springs, Texas, to be held July 2-30, 1908.

DUCKS DYING BY HUNDREDS.—Again, as for several seasons past, wild ducks are dying by hundreds in the marshy regions bordering on Lake Erie, between Huron, ten miles east of Sandusky, and the mouth of Maumee River, near Toledo. Examination reveals the presence in the head feathers of many of the ducks found of a small insect not unlike a flea.

LOCO POISONING.—"Loco" poisoning, which has long caused such great losses among the animals on the ranges of most of our western states, has hitherto baffled all attempts at explanation. Of the numerous suggestions made, the one which attributes the condition to the eating of poisonous plants (the "loco" weeds, especially *Astragalus mollissimus* and *Oxytropis lamberti*) has been the most generally accepted, but attempts to isolate a poison from these plants have been uniformly unsuccessful. A. C. Crawford, a pharmacologist in the Bureau of Plant Industry, has made the most interesting and important discovery that the toxic substances of the plants are inorganic salts, for the most part of barium. Only those "loco" plants containing barium produce the symptoms, and Crawford has been able to produce in animals symptoms closely similar to those of "loco" by feeding barium salts. These results are of great interest to the medical profession for they afford another illustration of the evil effects which may follow the long-continued use of minute quantities of a poison. It is already recognized that barium is a dangerous poison to man and a few cases of chronic poisoning have been reported; but before the announcement of the brilliant discovery of Crawford, probably no one would have suspected that this substance could produce such fatal and serious results. The publication of Crawford's complete paper, which promises to be one of the most important contributions made to pharmacology in the United States, will be awaited with great interest.—(*Journal Am. Med. Association.*)

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

INTUSSUSCEPTION IN A MARE [*Capt. W. A. McDougall, A. V. C.*].—The record of a mare that died after some 37 hours of continuous colics, and at the *post-mortem* of which an intussusception of just over one foot of ileum into the cæcum was found. The invaginated portion was gangrenous and the lumen of the bowels obliterated. There was also local peritonitis in the vicinity of the lesions.—(*Veterin. Record.*)

PEAT MOSS BEDDING [*Capt. C. E. Steel, A. V. C.*]—A horse has dermatitis on the breast between the fore legs, on the body and sheath. The hairs were off and there was numerous raised pimples as big as a pea, many of which had burst, leaving circular inflamed area from which flowed slight clear watery fluid. On other parts the skin was raised, wrinkled and tender. On inquiry as to the cause, it was shown that the trouble was due to the action of the urine soaked in peat moss bedding, which had not been removed as it should have been. Similar cases had already been observed. The treatment consisted in changing the bedding to fresh straw and local soothing applications on the skin. Everything disappeared in a week.—(*Veter. Record.*)

A SIMPLE CONTROL [*P. J. Howard, M. R. C. V. S.*].—Every practitioner has met that troublesome class of patients that resent or rebel against any interference, unless placed in stocks or cast. To the country practitioner these are not always possible or practicable to resort to. One day a man suggested to the writer the ordinary " Fetter " used with success on vicious horses. This consists in just simply tying together the fore and hind leg of the same biped, just as one sees goats and donkeys tied to keep them from straying. The author has an ordinary hobble with rope attached. The hobble is put on the hind leg, which is pulled forward and the rope is twisted a few times round the

fore leg and secured wth a plain hitch or knot on the hobble ring, which can be loosened with a pull. A pair of knee caps may be useful to have in bad cases which might get down.

Mr. Howard has resorted to " Fetter " in many instances and has fired hocks for curbs and spavins with it.—(*Veter. News.*)

PECULIAR SKIN LESIONS IN CATTLE [*R. Paine, F. R. C. V. S.*].—These recorded cases seem to add strength to the general opinion reigning in South Africa, that the sun has injurious effects upon unpigmented skin.

At the end of August a Friesland 5 years old cow was noticed to be slightly constipated. She was purged. Later she became restless when milked. After a few days, the teats became hard, dark red color and painful. The skin had become hard also. It was then noticed that the white portion of the skin all over the body except that under the belly and chest was becoming hard, and that there was a distinct line of demarcation between the white and the black skin, the white appearing as if it had been blistered. About three days later the skin began to slough in solid pieces, leaving a raw surface with little or no pus. The animal did not seem to suffer and after three months the skin had returned to its normal condition.

Another 6 years Friesland presented the same condition one day. Her teats became hard, dry and tender, the skin of the udder was in the same condition; her appetite was still good. Later the whole skin all over the body raised and became hard. There was no excessive secretion on the surface of the skin and little or no fluid under it, and in a week or ten days the skin began to slough as in the first case and the lesions were of the same aspect and acted in the same way.

It seems that other similar cases have been observed by other practitioners. The treatment consisted in the application of carron oil.—(*Journ. of Comp. Patho. and Ther.*)

UNCERTAIN RESULTS AFTER REPEATED TESTING WITH TUBERCULIN [*R. Paine, F. R. C. V. S.*]—The author has observed that " animals which have given a typical reaction to tuberculin test, may subsequently pass three later tests and at the fifth test, may subsequently, even when a considerable period has elapsed between the tests," and he makes the following inquiries: After an animal has once reacted to the test, is one justified in assuming that the animal has recovered, even if it has ceased to give a reaction? If so, after how many negative results?

So far the author has had no satisfactory answers. He then records the results of five tests made upon a bull and a cow, which illustrate his observations.

When killed, no definite lesions could be found in the bull. On the cow there were extensive tuberculous lesions, many of which were calcareous. The tuberculin used was also applied to other animals and those which reacted were in each case found tuberculous at post mortem.—(*Journ. of Comp. Patho. and Therap.*)

TETANUS FOLLOWING DOCKING IN LAMBS [*W. W. Goldsmith, M. R. C. V. S.*].—Seventy Suffolk ram lambs and eighty ewe lambs about one month were tailed. In all the ewe lambs, save two, the tails were simply cut off with the knife; but in two of the ewe lambs and all the ram lambs the stump, after amputation, was slightly seared with the hot iron, as the stump was bleeding rather freely. Five days later, two of the ram lambs died of tetanus, and nine more during the next two days. By the advice of Sir John McFadyean, anti-tetanic serum was resorted to and the surviving ram lambs received 80 minims of it. Before this was done, however, eleven animals in all died, and more than twenty were showing symptoms; two of these, being obviously dying and several others severely affected. Among these were included both the ewe lambs, which had had their tails seared, but no case occurred among the other ewe lambs. One of the ewe lambs succumbed to the disease, but the other recovered. After the injection of the serum no other cases developed, but six more deaths occurred among those which were already sick. It is strange that no case occurred in a lamb in which the tail had not been seared.—(*Journ. of Comp. Pathol. and Therap.*)

NERVOUS SYSTEMS OF TWO DOGS WHICH PRESENTED VARIOUS NERVOUS SYMPTOMS [*F. E. Batten, M. D., and Gordon Holmes, M. D.*].—The illustrated records of two cases which occurred in dogs and presented lesions carefully described by the authors.

The first dog came under the observation of Prof. Hobday, F. R. C. V. S. He was in good condition, well nourished, would take his food well at first. When left alone the dog walked around with his head bent down. He did not seem to see, and when reaching a corner, he stopped and would remain indefinitely, unless his head was turned round, when he would start again. He walked on a very wide base, in an ataxic manner. He had frequent sharp contractions of both fore and hind legs. There was no rigidity of the legs, and all movements were performed. All

reflexes were brisk; the sense of smell was deficient. He would eat any food when placed on the ground. If in a bowl, his nose had to be put on it. He appeared quite blind. His pupils were large and reacted to lght. Microscopical examination revealed marked perivascular infiltration of brain tissue; the brain is more affected than the cerebellum or medulla, and the medulla more than the spinal cord. The cell changes are most marked in the cells of the cortex. There was considerable degeneration of the cortico-spinal tracts.

The second case was that of a bitch which for some weeks had been getting dull and stupid. She became very thin and wasted, walked very unsteadily, hind legs drawn up and near the fore. She readily fell over into sitting position, could rise with difficulty and wander round. Sight was deficient, if not absent. Hearing was defective. She could not lap; if her nose was placed in a bowl she made no attempt to eat. Fed with a spoon, she would swallow with difficulty. There were no spasmodic movements of limbs, no localized paralysis. Knee-jerks were active. The dog could find her own kennel and would remain lying down for an indefinite time if not disturbed. The lesions were very similar to those of the first case. Perivascular and interstitial infiltration of the brain. Changes in the cells most marked in those of cortex and medulla. Considerable degeneration of the cortico-spinal tracts.—(*Veter. Journal.*)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

PROLAPSUS AND COMPLETE RUPTURE OF THE RECTUM, COMPLICATED WITH HERNIA OF A LACERATED INTESTINAL CIRCUMVOLUTION [*Mr. Fyot*].—This case took place in a horse thrown and secured for operation. The animal (thoroughbred) was 6 years old and was to be fired for lesions of osteo-arthritis of the hock. He had been prepared, cast easily, and being of a quiet disposition, struggled very little and only now and then.

Three-quarters of the inside of the hock had already been covered with points of firing, when a great acceleration of the

respiration was observed, accompanied with frequent abdominal contractions, followed by the expulsion of intestinal gases. The operation was stopped for a while and as everything seemed to have returned to a normal condition it was resumed. When suddenly, after few more points had been applied, the abdominal contractions reappeared, and under their influence prolapsus of the rectum took place; the organ presenting itself as a voluminous cylindrical tumor about 20 centimeters long. This was in a few seconds followed by a violent effort of the horse, and a laceration of the rectum took place and through it passed a loop of small intestine about 1 meter 30 centimeters long, and a portion of the small colon, 1 meter 90 centimeters long. There was besides, near the middle of that portion of the colon, a rupture, 3 or 4 centimeters long, with irregular and hæmorrhagic edges. Closer examination revealed the fact that the injury of the rectum was not a laceration but a complete circular rupture, the continued portion of the floating colon remaining in the abdominal cavity. The animal was immediately destroyed.

Post-mortem.—Nothing of importance beyond what existed outside of the animal was found. There was no contusion. The abdominal cavity contained 4 or 5 liters of blood. Stomach and small intestines are empty. The large intestine contains but little, and the portion of the floating colon corresponding to the rectum has its edges hæmorrhagic and irregular. The mucous membrane and the muscular coat have their normal thickness.—(*Bullet. de la Soc. Cent.*)

Caries of Incisives and of the Intermaxillary Bone in a Horse [*Mr. Douville,* Adjunct to the Clinics, Alfort].—A first case was noticed in 1896 on an old imported American horse. This is the second case on record, as far as the author knows.

Bay mare, 15 years old, looses flesh since several weeks; her appetite is good but her prehension of food is difficult. Now and then she takes hold of the manger as if cribbing. Opening of the mouth, and especially raising of the upper lip, is painful, and she rebels against it. She has a fetid, unpleasant odor from the mouth, the upper gums are inflamed, and gone round the left nipper. This is somewhat loose and there is a fistulous tract running in the alveola down to the incisive bone, which crepitates against the probe introduced in the fistula. Small pieces of bone come out. To extract the tooth, a T incision was made on the gums and the alveolo-dental periosteum, the tooth was well isolated and exposed and with a gouge applied on its root, was

easily extracted. Quite a quantity of sanious pus escaped. The bone was scraped and touched with tincture of iodine. Dressings with boric acid were kept up for a while and recovery completed in 15 days.—(*Recueil de Medec. Veteri.*)

CHONDROMA OF THE ELBOW [*Prof. Cadeac*].—This is the *post-mortem* of a dog, 10 years old, which was destroyed because of his condition. He presented on the left foreleg a large tumor, invading the arm, half of the forearm and a large part of the shoulder. This tumor is nearly round, measures 58 centimeters across and has a vertical circumference of 61 centimeters. It weighed 4 kilogs. 700 grammes. It has a uniform hard consistancy, and offers when cut, the resistance and aspect of cartilaginous tissue. The skin that covers it is ecchymotic and ulcerated on the internal face of the arm and near the shoulder joint. The sub-cutaneous cellular tissue is thick and œdematous. The tumor extends from the middle part of the forearm to the middle of the scapula and surrounds the elbow and the shoulder joints. The inferior extremity of the paw is œdematous and ulcerated. The blood vessels are pressed upon by the tumor. The bones are surrounded with the neoplasm, make part of it, and it is in vain that the humerus and the superior extremity of the radius and cubitus are looked for. There is no more cartilaginous tissue. The tumor can be cut in any direction and in no place is the hardness of bony tissue felt. This chondroma, composed of hyaline tissue cartilage, has also involved the prescapular gland, which is hypertrophied. The lungs are also invaded with secondary tumors.—(*Journ. de Zootech.*)

ABSCESS OF THE TRACHEA CAUSING DEATH BY ASPHYXIA IN A HORSE [*Mr. Breton*].—This horse had strangles, complications of pneumonia, but which recovered after having had several abscesses. He resumed his work sometime after, and then became affected with roaring, at first slight, and later very loud. An abscess was forming on the left parotid region, which before it was sufficiently ripe to be opened, necessitated tracheotomy. Some time later he began to roar again, especially when working hard. But as no special cause for it could be found, an antistreptococcic treatment with polyvalent serum was prescribed. The roaring became more severe, and as he was taken to the author's hospital he suddenly dropped and died in the street.

At the autopsy, the larynx, pharyngeal region and nasal cavities presented nothing abnormal. On opening the trachea, an abscess was found on the posterior face of it, opposite the old

and cicatrized wound of the temporary tracheotomy, performed before. The abscess was as big as a hen's egg and contained creamy pus. The tracheal mucous membrane had on that spot several red and very vascular vegetations, through which, in all probability, the phlegmonous inoculations had taken place. (*Bullet. de la Soc. Centrale.*)

SURGICAL INTERFERENCES IN STRANGLES [*Mr. Darbou*].—It is generally considered that surgical operations are contra-indicated upon animals affected with strangles, the field of the operation becoming a centre through which new local infections can take place and become serious to the patient. There are, however, cases of urgency, when one must resort to an operation which may be of great advantage to the suffering horse. Such is the case for tracheotomy, providing one has not waited too long, when the infection is very severe and that the manipulations are strictly aseptic. The author has saved 60 per cent. of his subjects. He performs the operation as early as possible, and protects the wound with iodoformed gauze. He at the same time resorts to antiseptic fumigations. The puncture of peripharyngeal abscesses has also to be performed some time. The author prefers to make it with the bistouri, instead of the actual cautery. Hyo-vertebrotomy must also be operated in some cases. In the congestive forms of strangles, venesection is also indicated and completed by injections of artificial serum. In three cases of broncho-pneumonia (complications of strangles), one of which followed tracheotomy, the author has obtained radical recoveries with intra-tracheal injections of formol at 4 per cent. He made two injections a day of 10 c. c. Improvement set in on the third day. The treatment was kept up for a week. The injection was made between the annular cartilages, very slowly to avoid suffocation and coughing spells.—(*Rev. Veter. and Rec. d'hyg. et milit. med. veter.*)

TWO AUTOPSIES OF CRIBBING HORSES. PATHOGENIC CONSIDERATIONS [*Mr. Breton*].—A nine-years old inveterate cribber dies with colic. At the autopsy internal lesions of severe intestinal congestion are found and nothing else on the other organs.

The retro-pharyngeal lymphatic glands are the seat of a subacute inflammation and form a soft tumor, brownish and enveloping more or less the nerves of the region.

A second horse, aged 6 years, also a cribber, dies of an hæmorrhagic congestion of the large intestine. Here again there exist lesions of the lymphatic glands symmetrical and resembling

exactly those of the first horse. The guttural pouches, Eustachian tubes were perfectly sound.

The author gives a great importance to the lesions he has found in those two animals and considers them as the determining causes, the starting point of a kind of reflexes promoting the motrice reaction of cribbing. This reaction is greater than is believed. The pharyngeal muscles, those of the larynx and the œsophagus are probably involved. The extension of the manifestations to the larynx explains the noise accompanying the act of cribbing But the lesions observed in the glands may also reach the great sympathic and the pneumogastric and thus would be explained the condition of bad nutrition of cribbers and the colics to which they are subject.—(*Rev. Veter.*)

ITALIAN REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

HYPERTROPHY OF THE PROSTATE, CAUSED BY INTESTINAL OBSTRUCTION [*M. E. Tabusso* of the Royal Super, School of Turino].—A dog, 7 years old, since several months has suffered more or less, until recently, when defecation and micturition have stopped entirely. Now he refuses all food, vomits, and since twenty-four hours his condition is critical. There is great prostration, rapid and short respiration, pulse is accelerated and small, temperature 38° C. The breath is fetid, abdomen tympanic, painful on pressure, rectal examination feels as if entering into an empty sac, and reveals against the vertebral column a swelling which by its anatomical position corresponds to the prostate gland. Death takes place after a few hours in collapse.

Post-mortem.—Abdominal viscera congested, gas and semi-fluid, putrefying alimentary substances found in the intestines, which are distended in their entire length. Gastro-intestinal mucous membrane is highly inflamed. In the posterior part of the colon and anterior of the rectum, is a mass of hard fæces, closing entirely the intestinal canal. Back of this, the rectum is empty and squeezed against the sacrum by an hypertrophied prostate, which measures 6 centimeters in length, 4 in width and 3 in thickness. It weighed 58 grammes. There were lesions of

chronic cystitis and the bladder contained some thick, turbid and richly albuminous urine. There was also parenchymatous nephritis in the first stage.—(*Giornale Della R. Socie. Veterin.*)

FILARIASIS OF THE SKIN [by the same].—A pointer slut, has since about two weeks, on the nasal region, peculair lesions which have remained rebellious to all care of cleanliness and disinfection. The general condition is good and the functions normal. On the nose (which is rather swollen) there is an ulceration as big as a piece of one centime (about a ten-cent piece). This ulceration has at its bottom some bloody, purulent fluid; it has irregular edges and is surrounded with little nodules, from which a little inodorous, bloody and purulent liquid is extracted. This condition exists on the nasal region and nowhere else. The examination of the discharge with the microscope reveals numerous pus corpuscles, hæmaties and embryos of *Filaria immitis S. hæmatica canis.* Embryons of filaria were also detected in the blood. A local treatment for the nose of antiseptic washings, solutions of sublimate, incision of the small abscesses. Ichthiol ointment was followed by a rapid cicatrization of the ulceration. The owner would not allow an internal treatment of intravenous injections of collargol and the dog was taken home. At a later date she was reported in good condition, without having had relapse of the trouble of the face.—(*Ibidem.*)

SYMPTOMATIC ASTHMA DUE TO FOREIGN BODY IN THE LARYNX [*Prof. E. Tabusso,* Royal Super. School of Turino].—Since about 15 days, this pointer, aged 3 years, has a capricious appetite, with intermittent attacks of suffocation accompanied with vomiting and cough. His respiration then is short and whistling. The general condition is poor. The dog is thin, and looks as if in constant pain; the visible mucous membranes are congested, temperature normal, respiration costo-abdominal, frequent, accelerated and whistling. There is a little discharge from the nose. Larynx is painful on pressure. There are signs of pulmonary emphysema and of diffused bronchitis. The pulse is small and frequent. Heart hypertrophied. The animal is placed on observation, where he remains until his death, 20 days later. He presented symptoms of asthma, reminding in their manifestations those of the bronchial form of man. There were in general two or three in a day and they would be brought out easily by exciting the dog or making him come out of his kennel. Then he would come out gay as in normal condition, jumping and running about. But in a few minutes he was taken with severe

dyspnœa, with long whistling expiration and rolling of his eyes. Then the clinical scenery became rapidly impressioning. His mouth is open, the tongue hangs out, there are irregular and peculiar movements of dilatation of the thorax and abdomen, the intercostal spaces are flattened and percussion gives a tympanic sound. There are loud, strong, sibilant murmurs at auscultation, general tremblings of the body, the front legs are stiff, the head and neck extended, the veins are prominent, the mucous membranes cyanotic, the pulse accelerated, almost imperceptible, beatings of the heart are tumultuous. The attack reaches its acme in a few minutes, when the symptoms gradually disappear, leaving however a respiration irregular and whistling. When the attacks come by themselves, they are less severe than when promoted artificially. After the attack, there is a dry, short cough accompanied with vomiting of food and of mucus, frothy and greenish in color.

Besides these, it was observed that deglutition was somewhat difficult. On that account, and because of the great sensibility of the larynx on palpation, this organ was examined several times but unfortunately *not with the laryngoscope,* for fear of giving rise to an attack of asthma. Nothing out of the way was observed in the other functions. A diagnosis of symptomatic asthma of primitive chronic bronchitic origin, and possibly of disturbance of cardiac nature was made, and the animal submitted to general treatment of his symptoms. All without results until the animal was finally destroyed.

Post-mortem.—Lesions found: Hypertrophy of the heart, emphysematous lungs, lesions of dry bronchitis. Then more on account of the method of the author in making autopsies than for special researches, the opening of the larynx was made and then only was the cause of the disease found. In the inferior part of the larynx under the vocal cords, entirely concealed to the internal examination of the larynx, and situated across the glottis, there was a piece of bone, portion of a spinous process of a vertebrae, which was fixed into the right vocal cord, which was thickened and ulcerated. The laryngeal mucous membrane was thick, granular and in a state of gangrene at the point where the bone rested on it. The laryngeal muscles were also hypertrophied. All the other organs were healthy.—(*Giorn. Della R. Soc. Veter. Italiana.*)

CONGENITAL ATRESIA OF THE URETER WITH CYSTIC ATROPHY OF A KIDNEY [by the same].—A hunting dog, 3 years of

age, has always done his work well and been in perfect condition except that now and then he had incontinence of urine. Since 4 or 5 days his general aspect has changed; he is dull and depressed, has lost his energy, has no appetite and shows signs of paralysis of one hind leg. In 24 hours, these symptoms assume a more severe character, general paralysis takes place and the dog dies a few hours after.

Post-mortem.—All the viscera are congested. There are nervous lesions consisting in those of adhesive pachymeningitis and extensive hyperæmia of the meninges. Abdominal lesions. All the organs congested. Liver and spleen hypertrophied. The urinary apparatus shows lesions which the author says he has not seen described in any work of veterinary medicine. The right kidney is atrophied, weighing only 5 grammes. It is represented by a single cyst or cavity enveloped by a fibrous and calcareous structure, and without traces of renal tissue. The cyst is empty and communicates with a ureter 30 centimeters long, 28 of which have a canal and the 2 last, implanted on the bladder form only a thick fibrous cord without canal and smaller in diameter than the other part. The left kidney is congested, hypertrophied and weighs 84 grammes. It exhibits lesions of diffused parenchymatous nephritis. The ureter of that side is normal. The bladder has its walls thick and is the seat of chronic hæmorrhagic cystitis. It shows only one opening for the ureter of the left side. The dog had also chronic prostatitis.—(*Ibidem.*)

GERMAN REVIEW.

By J. P. O'Leary, V.M.D., Bureau of Animal Industry, Buffalo, N. Y.

Investigations Concerning the Pathogenesis of Glanders [*Prof. Dr. Hutyra,* Budapest].—After it had been established by Nocard, Schütz, Dedjulin, McFadyean, and more recently by Bonome, that glanders infection can take place through the intestinal tract, the question still remains to be decided where the primary infecting process takes place and whether the glandered lung in such cases is of a primary or secondary nature. Furthermore the histogenesis of the initial disease process is glandered lungs is still in dispute. As Schütz, in opposition to the

views of Nocard, who defined the young glanders nodule as a caruncle, is of the opinion that this growth is a product of a miliary fibrinous pneumonia and consequently a hepatization nodule. Hutyra has undertaken, for the solution of this question, extensive experiments, on horses, asses and guinea pigs, by feeding and inhalation methods.

Experiment No. 1.—The inhalation of sprayed bouillon cultures. Result: Acute glanders in the inferior part of the nasal chamber, two pneumonic nodes in the lungs.

Experiment No. 2.—Inhalation of sprayed bouillon cultures. Result: Acute glanders in the inferior portion of the nasal cavity, pneumonic nodes and miliary nodules in the lungs.

Experiment No. 3.—Insufflation of nasal discharge, dried in daylight. Result: Negative.

Experiment No. 4.—Insufflation of nasal discharge dried in darkness. Result: Negative.

Experiment No. 5.—Spraying a glanders culture direct into the trachea. Result: Primary glanders of the lungs; secondary in the inferior portion of the nasal chamber.

Experiment No. 6.—Administering a dose from a potato culture in the drinking water. Result: Pulmonary glanders, glanders nodules in the skin of the lips and swelling of the pharyngeal lymph glands.

Experiment No. 7.—A potato culture given in a gelatine capsule per os. Result: Glanders of the lungs and spleen, the lips and pharyngeal lymph glands.

Experiment No. 8.—A potato culture given in a keratinized gelatine capsule, per os. Result: Pulmonary glanders.

Experiment No. 9.—0.02 gramme of potato culture given in a gelatine capsule, per os. Result: Punctiform hæmorrhagic nodes and nodules in the lungs.

Experiment No. 10.—0.01 gramme of the deposit from a potato culture given in a gelatine capsule per os. Result: Glanders nodules in the lungs.

Experiment No. 11.—0.02 gramme of the deposit from a potato culture given in a double gelatine capsule per os. Result: two gray transparent nodules and several large pneumonic nodes in the lungs.

Experiment No. 12.—0.01 gramme of the deposit from a potato culture given in a gelatine capsule per os. Result: acute septicæmia.

Experiment No. 13.—0.02 gramme of a glanders culture given in gelatine capsule; burst in the mouth. Result: Glanders infection of the pharyngeal glands, mouth and ulcers of the larynx.

The author then describes in detail the result of his investigations relative to the histogenesis of the nodules. That glanders is easily produced by feeding with the glanders virus; that intestinal infection with small quantities of virus results directly in a general infection of the blood, and in connection a localization of the process in the lungs, this organ being particularly susceptible, as a result, primary pulmonary glanders; that the virus conveyed by the lymph into the blood circulation of the lungs produces there a small-celled infiltration of the vessel walls and the perivascular connective tissues, as a result we find tubercle-like, gray, transparent, granulated nodules in the peribronchial connective tissue and hepatization nodules in the alveolar pulmonary tissue. As the disease progresses the catarrhal pneumonic character becomes more prominent, whilst at the same time thrombi form in the blood-vessels with cellular infiltration of their walls. The inhalation of air impregnated with glanders bacilli results as a rule only in acute infection of the extreme lower part of the nasal cavity, which later may develop through metastasis into pulmonary glanders. Infection through the trachea produces a catarrhal pneumonic condition of the lungs, due to the dissemination of the glanders nodules throughout the organ. Natural infection takes place usually by way of the digestive tract, whilst infection by way of the air passages through the inhalation of the virus under natural conditions is scarcely worthy of mention. Nasal glanders, also farcy, are to be considered as secondary processes to the primary affection of the internal organs, and particularly the lungs.

An acute constitutional disturbance with intermitting fever, under certain conditions, where the possibility of glanders infection exists, confirms the suspicion that infection has already taken place, especially when, in the meantime, also a temporary serous nasal discharge with slight swelling of the pharyngeal glands is observed.—*Zeitschrift für Tiermedizin*, xi. Bd., 1 H.

"I STARTED in my business as a beginner." "And I," said the racing man, "began as a starter."—(*Louisville Courier-Journal.*)

CORRESPONDENCE.

VETERINARY EDUCATION.

Washington, D. C., May 12, 1908.

The Editors of the American Veterinary Review:

GENTLEMEN—The honored name of George Washington is to have a sundown veterinary school tacked on to it! Think of all that revered name implies! Then think of what this new establishment portends!

Those who possess true ideals of veterinary education and bewail its present status on this continent believe that a veterinary institution of learning should attract students by virtue of its superior equipment and the mental attainments of its professional staff. But what are we to think of an institution that starts its career with an offering from the man who is announced as its "Dean" of "$5 per" as an inducement to others to gather susceptible young men into its folds?

On the 2d day of March last, Dr. H. H. Newcomb, a graduate of McGill University, informed me that he had received a verbal offer from D. E. Buckingham, V.M.D., a graduate of the University of Pennsylvania, and who is announced as the "Dean" of the new center of learning, of hard cash for the procurement of students. I could not help but think that Dr. Newcomb had misunderstood. We decided to endeavor to obtain confirmation of the offer and the following letter was composed and mailed to the new "Dean":

"Union Station,
"Washington, D. C.,
"2d March, '08.

"DEAR DOCTOR—I am just starting out on the road through Virginia and other points south and think this might be a favorable field from which to draw students for the new college. When you offered to remunerate me for procuring students you did not state how much per student you could afford to pay.

If you will let me know how much this service is worth, and if the offer is attractive, I will proceed to get busy.

" Yours truly,

" To Dr. D. E. BUCKINGHAM, " H. H. NEWCOMB,
" Washington, D. C." " Address c/o The Jefferson,
" Richmond, Va.

A fisherman who aims to catch fish generally uses an alluring bait which the fish are likely to bite at with avidity.

As we anticipated, we were soon in possession of the following communication from the new " Dean ":

" Hospital for Animals,
" 2113-15 Fourteenth Street, n.w.,
" Washington, D. C.,

" D. E. BUCKINGHAM, V.M.D.,
" Proprietor.
" March 5, 1908.

" DEAR DOCTOR NEWCOMB—Yours at hand and contents noted. Would be glad to have you talk our school to intending veterinary students. Will be the Veterinary College George Washington University. Tuition, $100; seven months course in evening. Will mail catalogues to all susceptible young men whose names you mail us. Will pay you $5 per student after he matriculates and states you spoke to him. Be sure to give us list for mailing, except students at Agricultural Colleges, where we are already working. Good luck to you. More data with catalogues. Good luck. Sincerely yours,

" D. E. BUCKINGHAM."

God help the veterinary profession!

Respectfully yours,
CECIL FRENCH.

THE REAL " KING OF STEERS."

Shelburne Falls, Mass., May 25, 1908.

Editors AMERICAN VETERINARY REVIEW:

DEAR SIRS—On page 543 of the January REVIEW there is an account of a steer called in the article " the king of steers," giving the weight at 3,400 lbs. The article goes on to say that

this wonderfully large animal "had been admired by millions of circus goers of two continents." The REVIEW cites the *Cincinnati Post* as authority for the above.

Jas. D. Avery of Buckland, Mass., Franklin county, a leading farmer and lumber dealer, also county commissioner and chairman of Board of Selectmen, owns an ox 8 or 9 years old which tips the scales at 4,700 lbs.

A few days ago I was at Mr. Avery's barn and took the opportunity to take some measurements of this immense animal as follows:

Height at shoulder 6 feet one inch.

Girth just behind fore legs 10 feet one inch.

Length from nose to tip of tail 17 feet.

Distance across hips 3 feet 2 inches.

Mr. Avery had a mate to this great ox which equalled it in size and weight which he had the misfortune to lose by sickness last spring.

This wonderful pair of cattle had been exhibited all through the New England and Middle states by Mr. Avery, netting him a large amount of money. Three years ago, at the Brattleboro, Vermont Cattle Show and Fair, they hauled on a stone drag over 6 tons of granite blocks, easily winning first prize for draft cattle.

Yours truly,
W. G. RICKETT,
Veterinarian.

NEW YORK city gets a portion of its milk supply from as far as four hundred miles distant, and the product of 86,000 farms is drawn on to meet its daily wants.

PURE-BRED STALLIONS IN WISCONSIN.—Dr. A. S. Alexander, professor of veterinary science in the College of Agriculture at the University of Wisconsin, and who has charge of the department of horse-breeding, reports that a considerable number of pure-bred registered stallions have recently been brought into that state and licensed for public service. This is an encouraging indication of improvement in the horse-breeding operations of Wisconsin, and the right step toward the eventual elimination of the numerous grade stallions which are retarding the advancement of the horse-breeding industry.

BIBLIOGRAPHY.

FOODS AND THEIR ADULTERATION. Origin, manufacture and composition of food products, description of common adulterations, food standards and national food laws and regulations. By Harvey W. Wiley, M. D., Ph. D. With eleven colored plates and eighty-six other illustrations. Philadelphia, P. Blackiston's Sons & Co., 1907. Octavo, 625, pp. $4.00 net.

When a scientific man buys a book he chooses, by preference, a work by the greatest authority in the field of which he wishes to get knowledge. The book in review, "Foods and Their Adulteration," is from the pen of the foremost human food specialist in the United States, none other than Dr. Harvey W. Wiley, Chief, at Washington, of the Bureau of Chemistry, Department of Agriculture. What Dr. D. E. Salmon was to the Bureau of Animal Industry, Department of Agriculture, Dr. Wiley is to the Bureau of Chemistry. In the course of a score of years Dr. Salmon organized and developed his Bureau to a high pitch of efficiency. Dr. Wiley is now doing the same thing for the Bureau of Chemistry. A work from such a man, of 625 compact, authoritative pages, covering all manner of human foods, their composition, adulterations and tests for them, should be, and sooner or later will be, perused by every member of the profession interested in sanitary human food manufacture.

The parts of the manual, ten in all, severally contain masses of information on (1) meats and meat products; (2) poultry, eggs and game birds; (3) fish foods; (4) milk, milk products and oleomargarine; (5) cereal foods; (6) vegetables, condiments, fruits; (7) vegetable oils, fats and nuts; (8) fungi as foods; (9) sugar, syrup, confectionery and honey; (10) infants' food and invalids' foods. The work closes with our national food standards, rules and regulations governing food manufacture enforced by the Bureaus of Chemistry and Animal Industry, and the government food inspection decisions.

It so happens that a large share of the work of the administration of local ordinances, state and national laws on food manufacture, has fallen into the hands of the veterinary profession, there to remain. The busy administrator of the law, whether a man of erudition in industrial chemistry or not, will need to have on his desk Dr. Wiley's "Foods and Their Adulteration," just the same as he would have to have there his Ostertag's "Meat Inspection"—each among the highest living authorities in each field.

IN MEMORIAM OF ROSCOE BELL.

By R. A. Stoute, D. V. S., Barbadoes, West Indies.

The March Review has made me sad,
In the record that you had
To make, of the death of Roscoe Bell.

I knew not the man as face to face,
But his greatness of mind one could trace,
While reading the writings of Roscoe Bell.

Among the writers, grand and true,
Writers for the American Review,
Found in the front was Roscoe Bell.

He has stood to the front in days of yore,
And scattered his gems for the rich and poor,
His gems, the outcome of thought of Roscoe Bell.

What he meant he said, and said it well;
So that one could read, and then could tell,
Of the truths that were taught by Roscoe Bell.

But as he has left this world of woe,
To a brighter and happier land to go,
Our loss has been the gain of Roscoe Bell.

Through the pages of our loved Review,
We must bid our dearest friend adieu,
The Review so loved by Roscoe Bell.

His mantle has fallen on Herbert Lowe,
So manfully onward the work will go,
The work so loved by Lowe and Bell.

I must welcome my friend, W. H. L.,
(Surely he remembers me quite well,)
He will be as welcome as Roscoe Bell.

OBITUARY.

EDWIN A. PARSONS, D. V. S.

Edwin A. Parsons, D.V.S., died at his home in New York City, on April 7, 1908, of Bright's disease, in his 50th year. Dr. Parsons was born in Hartford, Conn., June, 1858. He graduated from the Columbia Veterinary College, New York City, in 1884, and has since that time enjoyed a lucrative practice. He was at one time connected with the teaching staff of the New York College of Veterinary Surgeons. The Doctor leaves a widow, a son and three daughters.

RALPH OGLE, M. R. C. V. S. (DUBLIN).

Ralph Ogle, M. R. C. V. S., one of the pioneer veterinarians of New York City, where he had been practicing since 1851, died April 2, 1908, at the grand old age of 89 years. He was born in Morningtown, County Meath, Ireland, in 1819, and came to this country in 1851 and immediately began the practice of veterinary medicine, which he continued with unusual success until he was 80 years old, when he retired. He numbered many of the prominent families and horse-owners in and around New York City as his clients. He was also quite a horseman himself, and at one time had a stable of runners and trotters. Dr. Thomas Ogle, also a veterinary practitioner of New York City, is his oldest son, who is the father of Thomas Ogle, Jr., also a veterinarian. This aged veterinarian was the father of 21 children, and there is a large representation of grandchildren and great grandchildren. He was a prominent Mason.

THE Agricultural Department statistics show an increase in 1907 over 1906 of 297,725 horses and mules in the United States. There are 8,237,449 more harness-using animals in the country now than there were eight years ago, notwithstanding the introduction of motor vehicles.

SOCIETY MEETINGS.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

The meeting was held January 8, 1908, in the Merchants' Hotel, St. Paul, and was called to order at 1.30 p. m., with President McGillivray in the chair.

Roll call showed fifty-five members present.

Dr. McGillivray then gave his annual address.

Gentlemen of the Association:

It is a source of pleasure to me to greet so many co-workers at this our eleventh annual meeting. Your coming here shows not only your interest in this your association, but manifests the high regard in which you hold the welfare of all matters pertaining to the advancement of our calling.

Our organization was founded for the purpose of furthering all things looking to the promotion of the general good of our profession, and it is because it has kept this purpose plainly in view that our association owes its successful growth, and with a continuation of this aim we cannot fail in our prediction that as an association we shall continue to prosper.

Our general good is promoted by this organization, in that we can and do annually get together in personal contact with each other, become acquainted with those who are like laborers for the same ends, intermingle socially, exchange ideas in groups and in a body concerning subjects that are of vital interest to us professionally, and take home with us a better understanding of and more enthusiasm in the various departments of our work, a higher ideal of our profession and a new consecration to our important duties.

But more than this, our general good is promoted by this association from a professional standpoint, in that we have as a body, through its organized strength and through its legislative committee, secured praiseworthy and effective state legislation looking to the material advancement of our profession. And I take great pleasure on this occasion in extending for this association to our legislative committee hearty congratulations and thanks for their effective work before the legislature of this state

last winter. It was through their untiring energy that chapter 419 of the General Laws of 1907, the same being an act entitled: "An Act to regulate the practice of veterinary medicine, surgery and dentistry," was finally passed and became a law. You no doubt are all familiar with the terms of that law, and you gentlemen can all look with pride upon it and say that no State in this Union has a better law on that subject. It is a law that we have needed for years. It is a law that gives to us individually a higher standing, that insures reliable service to the public and places our profession upon the plane it deserves. Again I say, I warmly congratulate our legislative committee.

The act passed last winter regulating the public service of stallions is also a commendable law. While it may have some defects, and it is doubtless true that in some instances licenses are denied for some stallions on account of some defects which disqualify them under the law, which they do not transmit, yet in general the statute is a good one, and it has not yet been in operation long enough to disclose wherein, if at all, any amendment is necessary.

It is my belief that every man in this association should take some interest in politics in his locality. I believe this because there may be many laws that would be to the general good that we would be particularly interested in that should be passed in the future, and I believe it because we certainly want to maintain on the statute book the good in the laws as they now exist. A man who is dormant politically has and can have no material influence with the members of the legislature from his district, and one who is active in politics, although his ideas are wrong and even dangerous, will secure the support of his policies from the legislative members whom he assists in electing. I do not mean that we should be obnoxiously partisan, nor that we should enter politics for personal gain or for office for ourselves, but that we should be identified in the support of those candidates to whom, if elected, we could approach with a feeling that we had a political and personal right to be heard by them and apply for their support for such measures as would inure to our mutual welfare.

Of course the foundation of a citizen's influence in the community in which he lives is his own personality. To be influential politically he must be thoroughly honest, keep his debts paid and live in such a way that his neighbors will say, in speaking of him, "There is a good man." Such a citizen as that,

who manifests political activity properly tempered, can be most influential with a member of the legislature whom he has not been afraid to openly support, and such a citizen can secure from that legislator hearty support of all measures that will be to our common good, and that citizen, too, will have most respectful attention from any legislator against whom he may have actively worked.

I trust, gentlemen, that you will see to it that you are in a position to effectively interview any officer of the law in your district and command his attention, if not his energetic support, upon any measure that is to our mutual interest.

In closing, I desire to again express my appreciation of your presence here, and to thank all the officers and committees and members of this association for their good work during the past year, and to wish to each of you and to this assication continued success and prosperity.

Dr. McGillivray then called for the report "On Colleges," by the committee, Dr. Leech, chairman.

Dr. LEECH—Mr. President, as chairman of that committee, I have not made out any report and do not know that there is any special report to make since the last meeting. The conditions are about the same as at that time. The only real change that there is in the colleges since that time has been with reference to the Kansas City School. That college has inaugurated a special branch in stock judging and agricultural work, but while they have practically enlarged their course they have not extended their time. The time still remains three years. The report of the last American Association was that the Grand Rapids school was now on a three-year basis, although there was some question as to whether it was a whitewashed report or not. I believe we should insist, as state organizations, that all colleges and school who return their reports, or from which we receive reports, should give us a report that is absolutely unbiased and that that report should be more thorough and searching. The report should be made upon the best of knowledge and without fear or favor.

The only drawback that I can see now that is going to confront us, and that will have to be considered, in as much as now the reports that come to us usually, and which we rely upon, come through the college faculties and examining boards of this country. We get that report and accept it as being final, and we are not sure about the whitewash. They are advocating the

installation of a course in stock judging and agriculture throughout all the colleges as an absolute necessity. If so, I see no reason why the college course should not be extended one term to cover that course. Any one taking that course in the schools of agriculture must put in two years to get the short course, and in order to comply with this necessity, I do not think we can consistently crowd the course in stock judging and agricultural work into our colleges in three years and be more beneficial than in two years of veterinary work. As I view it there is going to be an absolute necessity that all colleges, if this branch is adopted, will have to come under a four-year course, and I think if that is the case we should all work with that object in view, in order to bring that course up to the standard where it ought to be, because a short course of one year in a veterinary college does not cover the same ground as a short course in agricultural colleges, which calls for two years for the same work. I think we ought, in justice to ourselves, if they are going to inaugurate that course, insist that we shall have four-year college courses in all schools.

Dr. McGILLIVRAY—Did Dr. Leech report anything on Toronto College?

Dr. LEECH—The Toronto school is now under the three-year course, run by the government. I reported that at the last meeting.

Dr. MACK—In regard to the Ontario school, is that of six months?

Dr. LEECH—The announcement that was made by the report read at Kansas City was that it was to be taken up by the Provincial government and run as a university, and that the course would comprise a three-year course of six months each.

Dr. Beebe was called on to report on Bacteriology.

Dr. BEEBE—I think one of the latest things that has come up in the line of bacteriology is the cuti-reaction for tuberculosis. This has proven quite satisfactory in the human subject for the testing of suspected tuberculous individuals. It is used instead of the subcutaneous injection of tuberculin. The way it is used is to scarify a small place on the skin and apply a strong solution of concentrated tuberculin; that is Koch's concentrated tuberculin diluted 50 per cent. After twenty-four hours there will be an oedematous patch at that place. If the patient is tuberculous the skin is somewhat thickened and red, and this reaction subsides in about three or four days. This has proven quite

satisfactory in the human subject, and Dr. Vallee, in France, has used it on cattle. It has proven very satisfactory in the few cases he has tried. He has only tried it on 75 animals, but the results were the same as those with tuberculin injected subcutaneously.

Another new method is by dropping two or three drops of the tuberculin into the eye, and if the subject is tuberculous the eye becomes very much inflamed and the pupil becomes contracted and this reaction subsides after about three or four days. This would not be very applicable in veterinary medicine, but is satisfactory in the human medicine. Perhaps after some little time this method might be so perfected that veterinarians can use it.

There has recently been a bulletin published by the Bureau of Animal Industry, by Schroeder & Mohler, on the Tuberculin Testing of Hogs. They have conducted a large series of tests upon hogs to see if they would give a good reaction to tuberculin. They have found out that the temperature in the hog is very variable. In fact, if the hog is exercised a very little the temperature will go up two or three degrees in a very few minutes. They have crated the hogs so that they cannot move about, and have taken temperatures and found they could keep them from fluctuating by this method. In their experiments they were able to detect tuberculosis in 97 per cent. of those tested. In the others they got a slight reaction, but not enough to consider typical.

In the last *Journal of Comparative Pathology and Therapeutics* there is an article upon the germinative tuberculosis. There is merely a review from one of the German journals. They injected about 5 c. c. of the culture of tubercle bacilli in the testicles of goats and then allowed the goats to serve the females and found the kids from this sire were all tuberculous and dams were found to be non-tuberculous by post-mortem examinations, so that tuberculosis must have been transmitted from the ewe. There has been a great deal of controversy over this subject, and I think this is the first real satisfactory experiment performed along this line.

There is one more thing that is of particular interest and that is that Dr. Ostertag has been able to verify the work of Dorset upon hog cholera. They have been able to find the virus of hog cholera passed through a clay filter. That verifies the theory that hog cholera is due to an ultra-microscopical organism and not to hog cholera bacillus.

Dr. McGILLIVRAY—We will call on Dr. McDonald for his report on Infectious Diseases.

Dr. McDonald presented the following report:

REPORT FOR THE LAST SIX MONTHS OF 1907.

Tuberculosis—

During the past six months there have been 8,950 cattle tested, of which number 955 reacted.

579 cattle were tested at South St. Paul, of which number 12 reacted.

Hog Cholera—

During the past six months there were 193 farms in 19 counties where hog cholera existed. At the time of report being sent into the office 3,472 had died, 1,212 were sick at the time. The total number in the herds on these 193 farms were 7,711.

Glanders—

Number of horses inspected	1,201	
Killed on inspection		43
Tested after inspection	853	
Reacted when tested	223	
Killed after test		147
Quarantined	132	
Reinspected	296	
Killed on reinspection		93
Total killed		283

Dr. McGILLIVRAY—We will call on Dr. Price for his report on Surgery.

Dr. Price then presented the following report:

SURGERY.

The Drs. Merillat of Chicago call attention to some items selected from the Practical Medical Series of the *Year Book,* which are of interest to the veterinary surgeon, in the December VETERINARY REVIEW, and which I here call attention to.

General anæsthesia by means of chloroform being the cause of twice the number of deaths as compared with ether. That with ether anæsthetic pulmonary and other troubles are apt to prove serious and even fatal. My personal experience as a subject of ether anæsthesia lasting four and one-half hours con-

vinces me that the effects of etherization continued for such a long period produces permanent results of a debilitating nature on the system. The operation itself, for removal of varicose veins of both lower limbs, was eminently successful and was followed by primary healing, not a single suture, of about 100, having any indication whatsoever of pus, and the thermometer registered a straight line from start to finish, there being only one rise of .2 degrees Fahrenheit immediately following the operation. Yet I have never felt the same vim, nervous energy, etc., as previous to the anæsthesia. It is my belief that such protracted anæsthesia produces permanent enlargement of the neurons, in my case amounting to removal of the varicosities of the limbs, but productive of varicosities of the dendrites of the brain tissue, which indirectly themselves cause other organs to become debilitated, especially the liver. This organ, by improper oxidation processes of waste tissue products, in turn causes irritation of the kidneys and other organs, thus setting up a complete systemic disturbance, which is never completely overcome. From the Germans, through Prof. Sendrail, we hear of a new method of producing general anæsthesia by the intraperitoneal injection of a 10 per cent. solution of chloral hydrate in proportion of 1 gramme of chloral hydrate to 10 kilogrammes body weight, amounting in the horse to from 25 to 75 grammes, and in the dog from 2 to 12 grammes. In American weight it would be 16 to 18 drachms of chloral hydrate for horses, and one-half to three drachms for dogs, adding ten times as much water for making the solution. In ten minutes the animal lays down and is soon sleeping and insensible, there being no primary stages of excitement. The surgical anæsthesia lasts half an hour or longer, yet the animal may remain lying much longer, perhaps an hour without moving. Soon he staggers to his feet and gradually regains consciousness, fully recovering in a few hours.

Pilocarpine acts as an antidote for overdoses of over-sensibility by eliminating it from the system. Small doses of strychnia should also prove suitable, given hypodermically.

Chloral is a base-dilator, hence it is advisable to secure blood vessels during the progress of the operation when it is necessary to divide them.

For local anæsthesia alpqui is recommended by Dr. A. Dittmer, it being ten times less poisonous and twice as rapid in its action as compared with cocaine. It further can be sterilized and retains its strength for a very long time. It is less expensive

than cocaine. Alpqui, however, produces a slight hyperæmia. Dittmer prescribes usually a 3 per cent. solution.

Magnesium sulphate in solution has been mentioned as the latest local anæsthetic, coming from the Rockefeller New York Institution.

Surgical Dressings—

Bicarbonate of soda is highly recommended as a wound dressing, both dry and in solution. Hot solutions, 2 ounces to the quart, are injected into the wounds, and dry soda is powdered over them, followed by suitable dressings.

Iodin is credited, in the form of pure crystals, with higher antiseptic potency than any ordinary dry dressing. It is dissolved in ether and injected into the wound, the ether evaporating leaves crystals of iodin all over the parts. All blood must be removed before making the application.

Crystals of boric acid have been used for such dressings in my practice for many years with uniform satisfaction.

In opacities of the cornea a 6 per cent. solution of ammonium chloride is recommended. Personally, I have found ammonium chloride the most satisfactory solvent for fibrinous effusions and deposits. The *Year Book* also gives a varnish for wound dressings, consisting of

50 parts chloroform.
20 parts mastic.
A few drops of linseed oil.

The non-sensibility of the internal organs is referred to, but has been known to those who have practiced canine abdominal surgery for many years. The tissues beneath the skin, excepting nerve tissue itself, seems insensitive, or only very slightly so, in comparison to the skin itself.

Incising the skin at an angle in order not to produce scars is again called attention to.

The beneficial effects of magnesium sulphate in tetanus is stated to have worked marvels. It is given in solution, 3 drachms to the pint, directly into the jugulars.

Its action is undoubtedly one of oxidation, this destroying the toxin, rendering the latter inert and suitable for excretion. For some years I have been experimenting with both the magnesium and the sodium sulphate in azoturia with this object in view, and have had very satisfactory results.

In pedal surgery great fear seems to be experienced in all operations extending beneath the epidermis and its continuation, the horny box of the hoofs. If the same principles were applied to operations on these parts as on other parts of the body success would be almost universal.

In quittors, make a dependent opening, pack the wound (after curetting thoroughly all the sinuses) with gauze or wicking, saturated with a strong solution, 1 to 3, of any caustic, bandage and leave in for five to fifteen days. Put the animal to work any time after the fifth day and use further packing if necessary. In nail-punctured wounds penetrating the tendons or their aponeuroses, open by longitudinal incision, disinfect and keep open until pus formation ceases. Use antiseptic dry dressings, covering with absorbent cotton, oakum and suitable bandages to exclude dirt, etc.

Recently I had two cases of severe lameness following punctured wounds of the hoof. In one the flexor pedis perforans tendon was thickened in the hollow of the heel. With a small one-quarter inch sharp-pointed bistoury I cut through the skin and tendon, being guided as to depth by a probe, and continued the incision until there was no resistance, then the wound was washed out with bichloride and peroxide solution, dusted with boracic crystals and covered with absorbent cotton and a suitable bandage. After a few days improvement was reported, but a week later the case was as bad as ever. Concluding that closing of the opening had occurred, the animal was brought to my infirmary, where it was found as surmised. The wound was reopened and rapid recovery followed.

The second case was in the toe of the hoof. This one was relieved by a longitudinal incision, made with an ordinary surgeon's bone saw, through the wall until the pus cavity was reached. Two months had elapsed since the receipt of the injury before lameness of a severe character developed. Two days after the operation the horse was ready for work. No relapse occurred up to the present, now three months, in either case.

For some years, as many of you are aware, I have been experimenting with the grafting of glands from healthy dogs to diseased ones, with a view of overcoming the toxic condition resulting from injured or diseased glands. The operation is very simple, merely exercising aseptic precautions in the removal and the insertion or grafting. I find the abdominal cavity

most suitable in dogs, as they cannot readily reach the wound by scratching, licking or biting, as they can in other locations, when done subcutaneously. After securing the desired gland, immerse it in warm sterile saline solution while preparing the patient. Make an incision into the abdomen, cover the wound with sterile cloth, cut through the cloth, draw out a piece of omentum, scrape it slightly to cause adhesion, suture the gland in place, surrounding it with omentum and replace the whole. The gland may also be sutured on to the parietal peritoneum if desired. Being a very active practitioner, little time has been at my disposal to fully carry out my experiments. Yet I have had evidently beneficial results in every case. My first subject was a dejected, enervated, rheumatic, eczematous setter, with goitre of long standing. Though an unexcelled hunting dog, he was considered worn out and sent to be chloroformed. Getting the owner's consent to keep the dog, I grafted a thyroid abdominally. After a few days evident illness, recovery was rapid, and in a short period the symptoms of decrepitude, rheumatism, etc., began to disappear. Later he became playful and acted like a pup, though at least ten or eleven years old. The owner and I hunted with this dog for birds for four successive years. He found nine-tenths of the birds and the bags were all good ones.

Dr. AMOS (in the chair)—We will now hear the report on Finances by Dr. Annand.

Dr. ANNAND—I take it for granted that the treasurer's report has been given, and I find nothing here that would raise any suspicion that anything is wrong, and consequently approve the report.

I think, possibly, as chairman of the Finance Committee, although I have no report to make, that I was appointed as a committee of one to examine the report of the state examining board. I think nearly every one here takes the AMERICAN VETERINARY REVIEW, and you have the report there as given at Mankato, with possibly a few little exceptions, which was to a great extent due to misunderstanding at the bank, only just a few cents one way or the other, which was easily corrected when Dr. Reynolds and I got together at the First National Bank. The report as printed in the AMERICAN VETERINARY REVIEW is approved.

Dr. MCGILLIVRAY—What will you do with the report?

Dr. J. N. GOULD—I move that the report be accepted as approved.

The motion was seconded and carried.

Dr. MCGILLIVRAY—The next is the application for new members.

Dr. Mack read the following applications:

J. A. Scott, Waverly, C. V. C., 1893. Vouchers, J. N. Gould and T. Falconer.

O. H. Titterud, Constance, Ontario Veterinary College and C. V. C., 1905. Vouchers, C. A. Mack and R. J. Coffeen.

F. E. Judd, Windom, Western Veterinary College, 1901. Vouchers, J. N. Gould and C. S. Shore.

C. Cueff, Raleigh, N. D. Copenhagen, 1906. Vouchers, C. A. Mack and L. Hay.

C. Anderson, St. James, Royal Veterinary College, Copenhagen, 1892. Vouchers, C. A. Mack and M. H. Reynolds.

Dr. McGillivray then asked the applicants to please retire until the association had passed on the applications.

The following were elected to become members of this association:

Doctors J. A. Scott, A. H. Titterud, F. E. Judd, and Dr. C. Cueff as an associate member.

Election of Officers.

The election of officers resulted as follows:

President—Dr. W. Amos.

First Vice-President—Dr. C. E. Colton.

Second Vice-President—Dr. A. F. Lees.

Secretary and Treasurer—Dr. C. A. Mack.

Board of Directors—Dr. C. E. Leech, Dr. J. N. Gould, Dr. R. La Pointe, Dr. W. Amos, Dr. C. A. Mack.

The meeting then adjourned until 7.30 p. m.

The meeting again convened at 8 p. m. with President McGillivray in the chair, when the following papers were read and discussed:

"Ruptured Bursa," by Dr. Holton (see Reports of Cases).

"Mange," by Dr. Ilstrup.

"Rabies," by Dr. Humphrey, M. D.

"Hæmoglobin," Dr. Lipp.

"The Work of Eradicating Tuberculosis from the Herds of the State," by Dr. Whitcomb.

"Disinfection and Disinfectants," by Dr. Leech.

Dr. Reynolds then presented the report of the State Examining Board, which is as follows:

SECRETARY'S REPORT FOR THE SEMI-ANNUAL PERIOD ENDING JANUARY 6, 1908, OF THE MINNESOTA STATE VETERINARY EXAMINING BOARD TO THE MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION:

Legal Matters—During this period we have had one important ruling from the attorney general's office on a question raised by the county attorney at Wright County, whom we were urging to institute prosecution proceedings. This opinion is under date of September 4, 1907, and was rendered by George T. Simpson, assistant attorney general. The question submitted by your secretary was as follows:

"Section 5, chapter 419, Laws of 1907, state that this section shall not apply to the dehorning of cattle or the castration of animals, *nor shall it prevent anyone from rendering necessary assistance in the treatment of any domestic animal when the attendance of an authorized veterinarian cannot be procured without great inconvenience or risk.*"

"Can this be construed to mean that if an unlicensed man, who has had a little experience in veterinary work, lives nearer to a case needing immediate attention than a licensed man, that the unlicensed man may take care of the case; *i. e.*, do veterinary practice, charge and collect for the same without violating the law? Would it be necessary to show in court that the defendant was not more accessible than some licensed man?"

Mr. Simpson's reply was as follows:

"* * * That section simply means this: That if an unlicensed person renders assistance and should be arrested and charged under the act with a violation of the same, a *prima facie* case would be made out by proving that such assistance had been rendered and that the person was not licensed. Thereupon, if such person was able to prove that it was a case where 'the attendance of an authorized veterinarian could not be procured without great inconvenience or risk,' such evidence would be admissible and would go to the jury for the jury to judge of its weight, and if the jury should find that such was the fact, such person would be entitled to his discharge. Each case would, therefore, necessarily stand upon its own facts and no general line of demarkation can be laid down."

We have very recently had another opinion from assistant attorney general George T. Simpson, under date of January 3, 1908. This concerns the change in method of appointment to board membership.

Under date of January 2, 1908, I called Mr. Simpson's attention to the fact that the new law provides for a State Veterinary Examining Board, consisting of five veterinarians of specified qualification, each to be appointed for a term of five years. One vacancy occurs each year which is to be filled by appointment.

The first board appointed under this new law is to consist of five members of whom there shall be appointed one for one year, one for two years, one for three years and one for four years, and one for five years. The law previously in force provided for a board to consist of five members to be appointed by the governor, each for a term of two years and until their successors are appointed and qualified.

Mr. Simpson's attention was called to the fact that no appointment had been made under the new law, and he was asked concerning the legal standing of the old board and the method by which the change in plan of appointment would go into effect.

Mr. Simpson's reply is as follows:

"* * * That until the governor sees fit to appoint under the terms of the Act of 1907, the present board continues to hold, but that immediately upon appointment being made under the terms of the last-mentioned act, the former (present) board goes out of existence and the terms of office cease. This is based upon the provision of the Act of 1907, to the effect that all inconsistent legislation therewith is hereby repealed."

Office Methods—We have modified and, I hope, improved our office methods in certain important respects during this period. As has been our previous custom, we have paid all bills by check, each check showing the item for which it is drawn, but we have adopted a new method of keeping cash account and check stub records in a form of cash book, so that one entry makes at once the check stub entry and the cash book entry. This bank cash record is balanced each month.

All our previous receipts and disbursements have been reentered by this new method. We thus put the financial affairs of this board in a much more simple form, where they may be more readily inspected and more easily understood by one not

intimately familiar with the board work. This book is submitted herewith.

"Pending correspondence," previously reported, has been subdivided into "Miscellaneous" and "Follow up." In the latter is placed all correspondence concerning complaints and possible prosecution suits; correspondence which must not be lost sight of in a general file. This is what a business man would call his "Follow up correspondence."

* * * * * * * *

Reciprocity—A proposition for interstate reciprocity between Iowa and Minnesota was considered at the last meeting, the proposition coming from Dr. Talbot, secretary of the Iowa board. Dr. Talbot was invited to send to each member of our board a copy of the Iowa law and a sample set of their written questions, with the understanding that the Minnesota board would then be ready to consider the matter at its January, 1908, meeting.

I understand that this has been done by Secretary Talbot.

I would respectfully recommend that if a careful study of the Iowa law and the Iowa examination has been satisfactory to the board, a specific proposition be made to the Iowa board, defining the basis upon which we are willing to reciprocate.

I would suggest the following points for consideration:

That uniformity in examination for each board and similarity in examination between the two are essential; and that each board prepare several sets of questions on the subjects herein mentioned, the questions to be carefully worded and selected with a view to test fitness for intelligent practice and creditable representation for the profession rather than that they be minutely technical. The subjects for examination should be: Anatomy, five questions; surgery and lameness, ten questions; theory and practice, ten questions; obstetrics, five questions; materia medica and therapeutics, five questions; and laboratory subjects, ten questions. The latter should include physiology, general pathology, bacteriology and histology. We should go into these laboratory subjects only so far as an up-to-date practitioner or recent graduate may be reasonably expected to know them. Either board may cover additional ground as may be thought best.

Other boards subsequently coming into this reciprocity arrangement, should be admitted on similar terms, furnishing its

share of satisfactory questions, and each board being at liberty to use either its own questions or those from any other board which have been accepted.

Certificates issued must indicate the set of questions passed by the candidate. The examination fee should be collected by the board accepting certificate from another state, just as though examination had been given. Boards in the agreement should unite upon certain requisite details, *e. g.*, written examinations, except in very unusual cases, and a minimum requirement of say 65 per cent. to pass; that reciprocity should be maintained only for three-year schools recognized by the American Association, and that reciprocity can apply only to graduates.

* * * * * * * *

I wish to suggest that a bank should be specifically selected by this board and made the official depository for its funds, so that in case of possible financial difficulty the secretary may not be blamed or unfairly held responsible for financial loss. Our funds have accumulated to such an extent that we should place the board money where it will draw at least a time deposit or savings bank interest. Perhaps we should invest a portion of it in a good, safe interest-bearing stock, where it could be made to net 5 or 6 per cent. and readily sold when the money is needed.

I would therefore recommend that a specific bank depository be designated by the board at this meeting and that the sum of about $100 (subject to the discretion of the secretary) be deposited subject to check, the balance to be placed where it will bring some income.

* * * * * * * *

Recommendations.

Examination Papers—I would respectfully recommend that it shall at once become the custom of this board to preserve and file all examination papers, each paper to show the name of the candidate, his rating and by whom the grading was done.

* * * * * * * *

Policy in Prosecution Suits—The time seems to have arrived when it has become advisable for this board to clearly define its policy with reference to prosecution suits. I will recommend for your alteration or adoption that it shall be the established

custom of this board to confer with the attorney general when necessary and correspond with or interview county attorneys, with a view to assisting the local complainant to bring about successful prosecution whenever the preliminary evidence submitted and circumstances in general seem to justify prosecution. That all books and records or other information in the secretary's office shall be freely placed at the disposal of the county attorney or court, and all reasonable assistance offered, even to the attendance of the secretary as witness if necessary. The secretary shall not be expected to take the field in person upon the receipt of a complaint concerning an illegal practitioner and collect the needed preliminary evidence. In other words, that we shall depend upon the local complainant for the collection of evidence and assistance in the preliminary steps in prosecution.

Financial Report.

The accompanying financial report is submitted for your approval. Our finances are now in good condition. We may consider ourselves on good financial footing. We have ready money available for prosecution suits and other necessary legitimate expenses of the board work.

Annual Report.

A summary of the year's work may not be out of place.

The year ending January 6, 1908, has been a very fruitful one for Minnesota veterinarians, and we have many things for which we should be grateful. Perhaps the most important item for the profession in general, aside from general prosperity, was the new law, chapter 419, Laws of 1907, passed by the last legislature. The peculiar provisions of this law have been reported before. See our report for the semi-annual period ending July 9, 1907, and presented to the board and to the State Association at the July meeting.

A few points should be mentioned again that they may be generally and clearly understood, *first,* that the examining board is now authorized to discriminate between colleges by reason of the wording " reputable " inserted in the new law. We are not bound to recognize all three-year schools; *second,* that certificates are now subject to annual renewal on or before the 1st of May. The board is given authority to revoke license or refuse renewal for gross professional misconduct. Prosecution may be either by civil or criminal and penalties either by fine or imprisonment.

I would like to report in this connection some additional motions and rules that have been adopted by the board in the past.

* * * * * * * *

Our office methods have been simplified and improved, particularly in the way of routine methods of filing, recording and listing, so that information may be very promptly found. There is a great deal of correspondence, official records, information concerning illegal practitioners, etc., which should always be readily accessible and this it has been our endeavor to accomplish.

The Stallion Board Law has proved an unexpected source of assistance to the Examining Board in many ways; for instance, the Stallion Board refuses to accept work from any veterinarian who is not in good standing with the Examining Board, *i. e.,* for instance, if the renewal fee is unpaid. We are thus able to locate illegal practitioners who try to do stallion examination work and send in reports.

* * * * * * * *

Forty-nine non-graduates have failed to renew. The graduates now practicing in the state have probably all renewed with possibly one or two exceptions.

We have now before the board two petitions from non-graduates for renewal cards and restoration in the list of legal practitioners.

In closing this report for the last half of the year and for the year closing January 6, 1908, I wish again to thank the members of the Examining Board and of the State Veterinary Association for cordial support, and bespeak for this board, during the year before us, a close, active, personal, supervising interest on the part of board members and of the State Association as a body.

*Summary of Financial Statement.**

On hand January 8, 1907	$116 44	
Received from January 8, 1907, to July 6, 1907	616 55	
Received from July 8, 1907, to January 6, 1908	133 72	
Total receipts to January 6, 1908		$866 71

*Itemized statement subsequently audited and found correct by the Finance Committee of the State Association. M. H. R.

Disbursements from January 8, 1907, to July 8, 1907	$137 55	
Disbursements from July 8, 1907, to January 6, 1908	293 13	
Total from January 8, 1907 to January 6, 1908		$430 68
Balance on hand January 6, 1908		$436 03

M. H. REYNOLDS, *Secretary.*

Dr. REYNOLDS—It seems to me that one afternoon and one evening is too little time for our business and program. We should have all day and an evening of the first day, or else we should have the second day for program and clinic, or we should have another day for our day of meeting. Perhaps we could devote half of the second day to clinic and part to program. Perhaps we could have a morning session, but one-half day and one evening is not enough for business and program when men are coming 150 to 300 miles to attend.

Dr. COOK—Certainly, our time is too short. I approve of Dr. Reynolds' remarks.

Dr. LYFORD—I move that we make the first day session begin at 9.30 in the morning.

Dr. LaPointe seconded the motion. Carried.

Dr. REYNOLDS—There is one other thing I want to have you think of for the next six months. In Nebraska and some other states the state veterinary association meets in connection with other organizations at the same time or in session after their state live stock breeders' associations. In Nebraska the State Veterinary Association program is printed with the Live Stock Breeders' program. The veterinarians then have the advantage of being there and mingling with stockmen from all over their state and being closely identified with them in their work. I have wondered if we could not hold one of our meetings in connection with the Agricultural Society and Breeders' Association.

Dr. GOULD—I think that would be a good idea. If we could mix in that way it would be a very desirable thing. I would like to see that for our next meeting, and would suggest that the secretary or the chairman of arrangements at our next place

of meeting make arrangements for something in the order of a banquet where we could sit around and face one another and have a good visit while eating our supper.

Dr. Cook—Another thing is that we omit the clinic and devote our time to recreation.

The meeting then adjourned..

C. A. Mack, *Secretary.*

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

The regular meeting of the above organization was held in the lecture room of the New York-American Veterinary College, No. 141 West Fifty-fourth street, New York City, on the evening of May 6th, with the president, Dr. Grenside, in the chair. There were thirty members and visitors in attendance.

Dr. R. S. MacKellar, of New York City, presented a most interesting case report on Glanders, with post-mortem and pathological findings. The doctor explained that this case was one which was one which was removed from a large stable where a few cases of glanders had occurred during the past winter. In order to determine, if possible, the extent of the disease among the other horses, all of them were subjected to the "Agglutination Test," under the direction of Dr. A. Silkman, of the Department of Health. As a result of this test, 85 per cent. of the horses agglutinated 1 to 500, or over. Some of these animals had a persistent elevation of temperature without exhibiting any physical symptoms of glanders. In order to determine the value of "Glander Vaccine," all the suspicious horses were given three injections of it at intervals of one week; the vaccine in this case being a 48-hour culture of *Bacillus mallei* which had been heated to 60° C. for two hours, after which ½ per cent. carbolic acid was added. The first two injections consisted of 2½ c. c. of the vaccine, the second being given one week after the first, and the third, consisting of 5 c. c., was given one week later. Among the horses having a persistent elevation of temperature, improvement was noted from the first, the temperature, with few exceptions, gradually returning to the normal. Four horses broke down, exhibiting clinical signs of glanders after the use of the vaccine. One of these animals, which had a persistent elevation

of temperature, seemed at first to be benefited by the vaccine, but within a short time exhibited a large submaxillary swelling which soon extended out over the angle of the jaw in a nodulated form. A nasal discharge was noted at this time. This animal was destroyed on March 13th and autopsied by Drs. Silkman and Miller. The lungs showed nodules varying in size from a pea to a walnut, some of these nodules containing pus while others were hard and gritty on incision. The mediastinal lymph glands were also affected.

Sections of the lung tissue were sent for pathological examination to Dr. Blair, who reported as to the findings as follows:

"While no bacteriological examinations of the tissues have been made, still the lesions appear to be typical glanderous nodules. There are two distinct types of lesions present in all the sections examined.

"Most of the nodules are new formed and consist of an aggregation of round cells, with a few polynuclear cells. The centers of the nodules are markedly degenerated, showing advanced caseous changes. The older nodules show active proliferation of connective tissue, but the peripheral fibrosis and infiltration so frequently seen in chronic glanders is not marked in the sections which I have examined. In this respect the lesions are unusual, since it is usually noted that old, inactive glanderous nodules ordinarily show considerable fibrous tissue encapsulation. A degree of calcification is also to be noted in many of the nodules which otherwise do not show marked connective tissue reaction. Surrounding the more recent nodules, interstitial and peripheral hæmorrhages are present, and the pulmonary tissue generally shows a patchy or broncho-pneumonia."

In the discussion which followed this report, Dr. MacKellar mentioned a large stable of 140 horses, where 13 had been destroyed on clinical diagnosis of glanders, and a few on mallein test. All of the horses in the stable were then subjected to the agglutination test, and with the result that 87 of the 140 showed agglutination of 1 to 500, or over, some as high as 1 to 10,000. Vaccines were used in this stable. One horse exhibited clinical glanders after the first injection, and one other case about three months later. No cases have developed since then, a period of over nine months.

Dr. R. W. A. English, of Jersey City, N. J., presented a most interesting paper on a recent outbreak of Cerebro-spinal Meningitis which occurred in a large stable in his vicinity. He

gave a complete history of the outbreak and the symptoms as they were presented. He also told of the interest that was taken in these cases by several prominent physicians of Jersey City, and of their advice and assistance in the pathology of the disease.

Dr. English exhibited some musty oats which he had first believed were responsible for the outbreak. The physicians, however, believed that they were dealing with a condition analogous to Cerebro-spinal Meningitis in the human. Bacteriological cultures were made from the choroid plexus, with the result that a pure culture of a Gram negative diplococcus was obtained. Smears from the cerebrospinal fluid also showed the same diplococcus in the pus cells.

Further researches are now being made, and when these have been completed, a more detailed account of the outbreak will be published.

Dr. J. E. Ryder presented an interesting case report on Osteoporosis in a horse. He had had the case under observation for a period of eighteen months, and when the animal died, he secured the head which he exhibited to the members, who examined it with much interest.

Dr. Hazel reported the arrest of several illegal practitioners, each of whom was held under $300 bail for examination. The question of retaining an attorney to represent this association in the prosecution of these cases was discussed, and was finally disposed of by leaving the matter in the hands of the prosecuting committee with power to act.

Several applications for membership were received, which will be acted on at our next meeting.

Meeting adjourned.

W. REID BLAIR, *Secretary.*

TEXAS VETERINARY MEDICAL ASSOCIATION.

The fifth annual meeting of the above association was held in Dallas on March 13, 1908.

The following program was carried out:

10.30 A. M.—Meeting of Executive Committee, No. 232 Main street (Dr. A. E. Flowers' office).

1.30 P. M.—Clinic, No. 186 Thomas avenue (Dr. L. E. Warner's Veterinary Infirmary).

7.00 P. M.—Banquet, St. George Hotel.

8.00 P. M.—Business meeting, No. 232 Main street (Dr. A. E. Flowers' office).

Discussions—

M. A. Francis, D. V. M., College Station, Texas.
W. G. Langley, D. V. M., Dallas, Texas.
F. G. Cook, D. V. M., Paris, Texas.
T. W. Watson, V. S., D. V. S., Corsicana, Texas.

Clinic.

The clinic at Dr. L. E. Warner's Hospital proved to be a very interesting feature of the meeting.

First case—Ovarectomy on bitch. Anæsthesized by Dr. G. W. Langley, who used an intraperitoneal injection of Stovaine. Operated by Dr. Marsteller.

Second case—Bay gelding, nine years old; lame in left foreleg.

Surgeons—Drs. Cook and Wallace.
Diagnosis—Chronic carpitis.
Prognosis—Unfavorable.
Treatment—Nothing done.

Third case—Bay gelding, twelve years old; lame in right foreleg.

Surgeon—Dr. Cook.
Diagnosis—Chronic tendonitis with contraction of perforans and perforatus tendons.
Prognosis—Unfavorable.
Treatment—Tenotomy.

Fourth case—Brown gelding, six years old; lame in right foreleg.

Surgeon—Dr. Lewis.
Diagnosis—Acute tendonitis.
Prognosis—Favorable.
Treatment—Rest and bandaging with cold dirby bandages.

Fifth case—Dun mare, with split ear.

Surgeons—Drs. Forbes and Watson.
Treatment—Scarification and cutaneous sutures.

Sixth case—Brown mule.

Surgeon—Dr. Cook.
Demonstration of operation for thoracic choke.

Seventh case—Bay colt, castrated standing. By Dr. L. E. Warner.

Eighth case—Sorrel colt, castrated standing. By Dr. L. E. Warner.

Dr. R. G. Flowers, Ft. Worth, Texas, and Dr. Fred G. Mathews, San Antonio, Texas, were elected to membership.

The following officers were elected for the ensuing year:

President—W. G. Langley, Dallas, Texas.

First vice-president—F. G. Cook, Paris, Texas.

Second vice-president—L. E. Warner, Dallas, Texas.

Secretary—Ross Marsteller, College Station, Texas.

Treasurer—S. L. Blount, Ft. Worth, Texas.

The association adjourned, to meet at the call of the Executive Committee.

ROSS MARSTELLER, *Secretary.*

VETERINARY ASSOCIATION OF THE DISTRICT OF COLUMBIA.

The regular monthly meeting of the above association was held on the evening of April 22, 1908, at No. 514 Ninth street, N. W., Washington, D. C.

Those present were: Drs. H. W. Acheson, F. M. Ashbaugh, Harry Bosley, D. E. Buckingham, W. P. Collins, L. S. Cleaves, C. E. Dornheim, A. M. Farrington, J. P. Keifer, C. B. Robinson, M. P. Smith, R. C. Talty, J. P. Turner, C. C. Weeks, W. E. Yetton, H. Young.

Visitors: Drs. C. F. Dawson (state veterinarian of Delaware), G. H. Miner (Bureau of Animal Industry), H. S. Gamble.

The committee on contagious diseases reported a large number of cases of rabies in the District and surrounding country; and after a thorough discussion of the subject, a committee, consisting of Drs. C. B. Robinson, C. C. Weeks and W. P. Collins, was appointed to wait upon the commissioners of the District of Columbia and present to them resolutions recommending the muzzling of all dogs.

Drs. H. S. Gamble and C. F. Dawson were elected members of the association.

Dr. M. P. Smith presented a very able and instructive paper on azoturia, which evoked very favorable comment, and was discussed at length.

During the evening the association was visited by Drs. Joseph Hughes, president, Chicago Veterinary College, Chicago, Ill.;

Richard P. Lyman, secretary, American Veterinary Medical Association, Hartford, Conn.; Tait Butler, secretary, Association of Veterinary Faculties and Examining Boards of North America, Raleigh, N. C.; Dr. Paul Fischer, state veterinarian, Columbus, Ohio.; and A. M. Farrington, assistant chief, Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C. These gentlemen were designated by the Secretary of Agriculture as a Committee on Veterinary Education, to visit the various veterinary colleges throughout the United States and report concerning the instruction in veterinary science given at these institutions.

Each of these gentlemen addressed the association briefly.

F. M. ASHBAUGH, *Secretary.*

THE MISSOURI VALLEY VETERINARY ASSOCIATION.

The fourteenth annual meeting of the Missouri Valley Veterinary Association will be held in Omaha, Neb., June 23 and 24, 1908.

The meeting was called by the officers of the association on these dates, which are Tuesday and Wednesday, because many of the short railroad lines do not run trains on Sunday. It is thought that these days will be more satisfactory to many and induce a larger attendance.

An excellent program will be found to have been arranged, and it is hoped that every veterinarian in the middle West will take two days off and attend this meeting.

B. F. KAUPP, *Secretary.*

EPSILON CHAPTER OF ALPHA PSI FRATERNITY—UNIVERSITY OF PENNSYLVANIA.

The students of the veterinary department, University of Pennsylvania, have made one important stride toward the establishment of a stronger bond of feeling among the fellow-students and the infusion of a stronger and deeper interest in the noble profession they have chosen, by organizing the Epsilon chapter of the Alpha Psi Fraternity. The installation took place Saturday evening, May 9, at Moseback's Banquet Hall, Thirteenth

and Grand avenue, Philadelphia, Pa. The ceremonies were conducted by Dr. John Drew, of the National Council, and Mr. H. P. Gill, of the Beta chapter. After the initiations the members assembled in the blue room, where a menu arranged by the charter members was served. Drs. John W. Adams, W. Horace Hoskins, Clarence J. Marshall and William Herbert Lowe, Associate Editor of the AMERICAN VETERINARY REVIEW, were elected honorary members.

WM. J. LEE, *Secretary.*

MASSACHUSETTS VETERINARY ASSOCIATION.

The annual meeting and banquet of this association was held at Young's Hotel, Boston, Wednesday evening, April 22, 1908. The following members were re-elected to office for the ensuing year: President, Frank J. Babbitt; first vice-president, Wesley L. La Baw; second vice-president, Charles A. Boutelle; secretary-treasurer, Wm. T. White.

Two new members were admitted into the association, and resolutions were passed on the deaths of Dr. Roscoe R. Bell, of New York, and Dr. Geo. H. Lee, of Brighton, Mass.

About thirty members sat down to the dinner at 7 p. m. The guests of the evening were Dr. J. F. Ryder, chief of the Boston districts for the United States Bureau of Animal Industry, and Mr. Frank D. Kemp, member of the Massachusetts legislature, from Springfield.

Following the dinner a general discussion on the eradication of bovine tuberculosis, with the allied subjects of sanitary measures for dairy buildings, took place, and held the attention of all present until a late hour.

WM. T. WHITE, *Secretary.*

A ZEBRA STUD.—The British Government is maintaining a zebra stud at Nairobi in Central Africa with the view, it is said, of later breeding zebroids for transport and work purposes instead of mules—that is, of using the zebra instead of the ass to cross with mares. The original stock was captured wild in its native habitat and it is stated that in a forthcoming report figures will be presented showing that the zebroids have proved more profitable than mules and if anything more tractable.

NEWS AND ITEMS.

CHICAGO's population consumes daily 240,000 gallons of milk.

ONE pound of learning requires ten pounds of common sense to apply it.—(*Persian Proverb.*)

SECRETARY LYMAN submitted to an operation for removal of the appendix on May 21st.

Dr. ALEXANDER PLUMMER, of the Military College at Fort Riley, Kan., was a Kansas City visitor the third week in May.

THE American Association of Medical Milk Commissions holds its second annual meeting at Chicago, Ill., June 1, 1908.

THE Illinois State Veterinary Medical Association will hold its 26th semi-annual meeting in Galesburg, at the Union Hotel, July 15th.

THE establishment of laboratory courses in physiology and pharmacology at the McKillip Veterinary College, Chicago, are announced.

THE annual banquet of the veterinary alumni of the U. of P. will be held at "The Orchard," in Philadelphia, on the evening of June 17th.

WILLIE—"I got a licking to-day from both pop and mom." His Uncle (who runs a livery stable)—"They certainly are a spanking pair."

Dr. R. W. JONES, an Inspector in the B. A. I. service at Canadian, Texas, is spending a short vacation visiting his parents at Kewanee, Illinois.

THERE were in the United States at January 1 last 21,194,000 milch cows and 50,073,000 other cattle—a total of 71,267,000, valued at $1,495,995,000.

Dr. FRIEDRICH LOEFFLER, professor at Griefswald, has been called to the chair of hygiene in the Berlin Veterinary School in the place of the late Professor Ostertag.

THE Library of Science, Calcutta, records its gratitude and sincere thanks with the AMERICAN VETERINARY REVIEW for the regular contribution of our periodical to their library.

THE Borough of Brooklyn, N. Y., is suffering from an invasion of eels which have found their way into the water mains by the thousands. The slimy wrigglers have clogged many pipes.

VOICES FOR STUFFED BEASTS.—The Teddy bear craze has led to the starting in New York of a new industry to supply whistles, or, as they are called in the trade, "voices," for stuffed toy animals.

THE jaw of the snake is supplied with what might be termed a double hinge, which permits the reptile when occasion demands to greatly increase its capacity and permits of its swallowing astonishingly large bodies.

THE St. Louis Society of Veterinary Inspectors is the name of a new organization composed of the veterinarians of the Bureau of Animal Industry stationed at St. Louis and at the National Stock Yards, Illinois.

VETERINARY INSPECTOR BEN HOWES reports that J. C. Weller, of Painted Post, N. Y., has a cow which gave birth to a live calf and eight days later gave birth to another live calf. Cow and calves are doing well.

Dr. O. L. PRIEN, formerly a veterinary inspector in the Bureau of Animal Industry at St. Paul, has been elected by the Board of Trustees of the University of Wyoming, Professor of Veterinary Science in that institution.

VETERINARIAN DIES OF LOCKJAW.—The *Kansas City Star* reports the death of Dr. Emery M. Herrick, Veterinarian, Sedalia, Mo., of tetanus, after a four day's illness. He is survived by a widow, a son and a daughter.

Dr. CHARLES EASTMAN has been transferred from Dr. Geo. S. Baker's meat inspection force at San Francisco, Cal., to Cambria, in the same state, and has been assigned to field work in eradicating cattle ticks under Dr. Wm. M. MacKellar.

VETERINARY education is being disseminated by B. A. I. Inspectors as they go from ranch to ranch. The ranchers are putting aside the "old horse doctor" ideas and are consulting the modern veterinarian for "up-to-date" scientific facts.

Dr. C. J. MARSHALL officiated as one of the veterinary inspectors at the Philadelphia Horse Show, May 25-30. He is also secretary of the Pennsylvania Work-Horse Association, whose second annual parade takes place in his city June 3.

ON May 21st, Dr. M. Cunningham, a young veterinarian in Kansas City, was thrown from a wagon by an unmanageable team and suffered concussion of the brain, and at this writing lies in a very critical condition in the University Hospital.

Dr. ELLIS of the REVIEW reports rather an unusual operation. Extraction of cataracts on both eyes of a rhinoceros, performed at the New York "Zoo," May 27, by Dr. Van Mater, professor of Ophthalmology at the New York-American Veterinary College.

ADDITIONS TO GOVERNMENT STUD.—The horse-purchasing board of the U. S. Department of Agriculture recently visited the bluegrass region of Kentucky and purchased a number of mares which will be added to the government stud at Fort Collins, Col.

Dr. MELVIN'S WORK APPRECIATED.—Dr. Melvin's work as Chief of the Bureau of Animal Industry, U. S. Department of Agriculture, came in for a well-deserved endorsement at the recent annual convention of the Cattle Raisers' Association of Texas, held at San Antonio, in that state.

PUBLIC sentiment in western Missouri and eastern Kansas is growing very rapidly in favor of the purification of milk supply of municipalties, and a number of small cities have established dairy and milk inspection. Among the recent ones added to the list are Joplin, Mo., Carthage, Mo., and Coffeyville, Kan.

STANDS FOR MARY.—Boy—Cow is a noun, feminine gender, third person singular, and stands for Mary.

"Stands for Mary?" asked the master in astonishment.

"Yes, sir," responded the urchin, with a grin, "for if the cow didn't stand for Mary how could Mary milk the cow?"—(*London Express.*)

BUTTERMILK.—"Which is the cow that gives the buttermilk?" innocently asked the young lady from the city, who was inspecting the herd with a critical eye.

"Don't make yourself ridiculous," said the young lady who had been in the country before and knew a thing or two. "Goats give buttermilk."—(*Springfield Journal.*)

His Majesty, King Edward VII., has conferred upon the Government Veterinary Bacteriologist of the Transvaal, Dr. Arnold Theiler, the most distinguished Order of Companion of St. Michael and St. George (C. M. G.). This Order, which was founded in the year 1818, has as its motto: "Auspicium melioris aevi" (Augury of a better age).

Dr. Carl W. Fisher, San Mateo, Cal., accompanied by Mrs. Fisher, is coming East for a rest. They will visit the Doctor's former home, Cabot, Vermont, and from there go to the American Veterinary Convention in Philadelphia, and thence to the International Congress in Washington, devoting the months of June, July, August and September to recreation.

Carbonated Milk.—Carbonated milk is the latest product which the dairy scientist has produced. From preliminary reports it would appear that a new method of treating milk has been discovered that will increase the time it may be held without going off flavor or becoming sour, from a day or two, which is now the limit, to anywhere, from three weeks to three or four months.

Deer Going to Minnesota.—For some unexplained reason many herds of deer and caribou are said to be crossing the line from Manitoba and invading the lake and forest regions of northern Minnesota. Travelers from the Rousseau River country report both herds of deer and caribou moving southward. They appear to be heading for the Red Lake and the Red River lake and forest country.

Pension for Prof. Law.—The Carnegie Foundation for the Advancement of Teaching has awarded a pension to Professor James Law, F.R.C.V.S., who retires this month, at the end of the present academic year, from the Directorship of the New York State Veterinary College at Ithaca after a long and notable career, and with the proud distinction of being one of the very few members of the original faculty of Cornell University who have been active in the service all these long years.

Result of Competitive Examinations.—As a result of competitive examinations held in Havana, Cuba, the following candidates have been elected professors in the recently established School of Veterinary Medicine of the University of Havana. Dr. Francisco Etchegoygen, General Pathology and

Medicine; Dr. Julio Brower, Surgery, lameness and shoeing; Dr. Ricardo Gomez, Physiology, animal mechanics and obstetrics; Dr. Francisco del Rio., Anatomy; Dr. Honoré F. Lainé, Conformation of domestic animals; meat inspection; legal medicine.

Drs. JOHN L. GROSS, of Amethyst, Colo.; T. Barnett Huff, South St. Joseph, Mo.; W. F. Osborne, Baldwin, Kan., and T. H. Wilson, Kansas City, Mo., have received appointments as veterinary inspectors at Chicago, Ill. Drs. Clifton Carter and E. F. Faulder, of Kansas City, and Robt. Newman, of Rea, Mo., have been appointed by the B. A. I. and assigned to duty in the scab eradication service with headquarters at Kansas City. These gentlemen are all recent graduates of the Kansas City Veterinary College who took the special Civil Service examination in February.

MAINE VETERINARIANS.—The records show that there are 118 persons in the state of Maine who have a legal right to practice veterinary surgery, medicine and dentistry in that commonwealth. Forty-six of this number are collegiately educated veterinarians and 72 are non-graduates. Three forms of certificates are issued by the State Board of Veterinary Examiners as follows: Form A, Graduates; form B, Non-graduates; form C, Non-graduates who are limited to dentistry.

The board has issued an alphabetical list of all legalized practitioners giving name, residence, college and form of certificate issued to each. Non-graduates are designated "N. G.," a very appropriate designation for some but not for all non-graduates. The board is constituted in its organization as follows: Dr. W. S. Lord (Harvard University), of Portland, President; Dr. F. E. Freeman (O.V.C.), of Rockland, and Dr. A. Joly (Laval University), of Waterville, Secretary and Treasurer.

EXAMINATION FOR FARRIER.—The United States Civil Service Commission announces an examination on June 17, 1908, to secure eligibles from which to make certification to fill a vacancy in the position of farrier, $720 per annum, Quartermaster's Department at Large, Washington, D. C., and vacancies requiring similar qualifications as they may occur. Applicants should show in their applications that they have had experience

in nursing and handling sick animals. No educational test will be given, and it will not be necessary for applicants to appear at any place for examination. The examination will consist of the subjects mentioned below, weighted as indicated:

Subjects.	*Weights.*
1. Age	20
2. Physical condition	20
3. Experience	60
Total	100

NEW JERSEY LEGISLATION.—Among the new laws passed by the New Jersey Legislature of more or less interest to veterinarians are the following:

Chapter 56, which authorizes the establishment of a Live Stock Commission of the State of New Jersey for the purpose of promoting interest in the breeding of pure breed domestic animals and the improvement of grade animals of the various breeds. This commission is given power to purchase and maintain stallions of the draft and coach types. Twenty thousand dollars is appropriated to the use of the commission for the current year and thereafter an annual appropriation of five thousand dollars.

Chapter 212 regulates the public service of stallions and jacks in New Jersey. Provision is made for the registration, examination and licensing of all stallions and jacks.

Chapter 97 appropriates the sum of twenty-five thousand dollars to the State Commission on Tuberculosis in Animals for defraying expenses and for the payment of slaughtered animals.

The game laws of the state are amended in several important particulars and additional legislation is enacted for the prevention of cruelty to animals.

Health and pure food laws are amended. The State Board of Health, as heretofore constituted, is wiped out of existence (Chapter 298) and an act passed (Chapter 299) creating a new State Board of Health. The Governor has appointed new men on this board and it is confidently expected that the long demanded re-organization of the board will now be speedily effected so that the work of this important branch of the state government may be administered in the most comprehensive and efficient manner.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary
American V. M. Ass'n.....	Sept. 8,9,10 & 11.	Philadelphia..	R. P. Lyman, Hartford, Ct.
Vet. Med. Ass'n of N. J.....	July 9, 10, 1908..	Newark	W. Herbert Lowe, Paterson.
Connecticut V. M. Ass'n.....	Aug. 4, 1908.....	New Haven ..	B. K. Dow, Willimantic.
New York S. V. M. Soc'y.....	Sept., 1908.....	Utica.....	M. Hamilton, Delhi.
Schuylkill Valley V. M. A.....	June 17.....	Reading	W. G. Huyett, Wernersville.
Passaic Co. V. M. Ass'n.....	Call of Chair...	Paterson, N.J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n.....	Call Exec. Com.	.....	R. P. Marsteller, College Sta.
Massachusetts Vet. Ass'n.....	Monthly.....	Boston.....	Wm. T. White, Newtonville.
Maine Vet. Med. Ass'n	July	Portland	A. Joly, Waterville.
Central Canada V. Ass'n.....	.....	Ottawa	A. E. James, Ottawa.
Michigan State V. M. Ass'n.....	Feb. 2-3, 1909...	Lansing.....	Judson Black, Richmond.
Alumni Ass'n, N. Y.-A. V. C.....	April, 1909.....	141 W. 54th St.	T. F. Krey, N. Y. City.
Illinois State V. M. Ass'n.....	July 15, 1908	Galesburg.....	N. I. Stringer, Paxton.
Wisconsin Soc. Vet. Grad.....	.....	.....	S. Beattie, Madison.
Illinois V. M. and Surg. A.....	.....	Decatur.....	C. M. Walton, Rantoul
Vet. Ass'n of Manitoba.....	Not stated.....	Winnipeg.....	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n.....	July 2-3, 1908...	Raleigh	Adam Fisher, Charlotte.
Ontario Vet. Ass'n.....	.....	.....	C. H. Sweetapple, Toronto.
V. M. Ass'n, New York City.....	1st Wed. ea. mo.	141 W. 54th St.	W. Reid Blair, N. Y. City.
Ohio State V. M. Ass'n.....	January, 1909...	Columbus.....	Sidney D. Myers, Wilmington
Western Penn. V. M. Ass'n.....	1st Wed. ea. mo.	Pittsburgh.....	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n	August, 1908....	St. Joseph....	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n.....	.....	Rochester.....	J. H. Taylor, Henrietta, N.Y.
Iowa Veterinary Ass'n.....	.....	.....	H. C. Simpson, Denison.
Minnesota State V. M. Ass'n.....	July 8-9, 1908....	Duluth.....	C. A. Mack, Stillwater.
Pennsylvania State V. M. A.....	.....	Philadelphia..	F.H. Schneider, Philadelphia.
Keystone V. M. Ass'n.....	Monthly.....	Philadelphia..	A. W. Ormiston, 102 Herman St., Germantown, Pa.
Colorado State V. M. Ass'n.....	June, 1908.....	Denver	M. J. Woodliffe, Denver.
Missouri Valley V. Ass'n.....	June 23-24, 1908.	Omaha	B. F. Kaupp, Kansas City.
Rhode Island V. M. Ass'n.....	Jan. and June..	Providence ...	T. E. Robinson, Westerly.
North Dakota V. M. Ass'n.....	.....	.....	C. H. Martin, Valley City.
California State V. M. Ass'n.....	Mch.Je.Sep.Dec	San Francisco	C.M.Haring, U. C., Berkeley
Southern Auxiliary of California State V. M. Ass'n.....	Jan.Apl.Jy.Oct.	Los Angeles..	J. A. Edmonds, Los Angeles.
South Dakota V. M. A.....	June 30.....	Brooking	C. McDowell, Watertown.
Nebraska V. M. Ass'n.....	Oct. 6-7, 1908 ...	Grand Island.	H. Jensen, Weeping Water.
Kansas State V. M. Ass'n.....	Jan., 1909.....	Topeka.....	B. Rogers, Manhattan.
Ass'n Médécale Veterinare Française "Laval".....	1st and 3d Thur. of each month	Lec.Room, Laval Un'y, Mon.	J. P. A. Houde, Montreal.
Province of Quebec V. M. A.....	.....	Mon. and Que.	Gustave Boyer, Rigand, P. Q.
Kentucky V. M. Ass'n.....	.....	Not decided ..	D. A. Piatt, Lexington.
Washington State Col. V. M. A ..	Monthly.....	Pullman, Wa.	Wm. D. Mason, Pullman.
Indiana Veterinary Association...	An'l, Jan., '09...	Indianapolis..	E. M. Bronson, Indianapolis.
Louisiana State V. M. Ass'n.....	.....	.....	E. P. Flower, Baton Rouge.
Twin City V. M. Ass'n.....	2d Thu. ea. mo .	St.P.-Minneap	S. H. Ward, St. Paul, Minn.
Hamilton Co. (Ohio) V. A.....	.....	.....	Louis P. Cook, Cincinnati.
Mississippi State V. M. Ass'n....	.....	Auburn, Ala..	J. C. Robert, Agricultural Col.
Georgia State V. M. A.....	.....	.....	C. L. Willoughby, Experiment
Soc. Vet. Alumni Univ. Penn.....	June 17, 1908....	Philadelphia..	B.T.Woodward, Wash'n, D.C.
Virginia State V. M. Ass'n	July 17, 1908....	Norfolk.....	W. G. Chrisman, Charlo'sv'le.
Oklahoma V. M. Ass'n.....	.....	.....	W. H. Martin, El Reno.
Veterinary Practitioners' Club....	Monthly.....	Jersey City ...	A. F. Mount, Jersey City.
Vet. Ass'n Dist. of Columbia.....	4th Wed. ea. mo.	514—9th St., N. W.....	F. M. Ashbaugh, Wash., D.C.
B. A. I. Vet. In. A., Chicago.....	2d Fri. ea. mo...	Chicago.....	J. Madsen, Chicago, Ill.
Arkansas Veterinary Society.....	.....	.....	B. H. Merchant, Little Rock.
York Co. (Pa.) V. M. A.....	.....	York, Pa.....	E. S. Bausticker, York, Pa.
Philippine V. M. A.....	.....	....	R. H. McMullen, Manila.
Montana State V. M. A.....	Oct., 1908	Helena.....	
Veterinary Ass'n of Alberta... ..	.....	.....	C. H. H. Sweetapple, For. Saskatchewan, Alta., Can.
Chicago Veterinary Society.....	2d Tues. ea. mo.	Chicago.....	J. M. Parks, Chicago.
Maryland State Vet. Society.....	.....	Baltimore.....	H. H. Counselman, Sec'y.

PUBLISHERS' DEPARTMENT.

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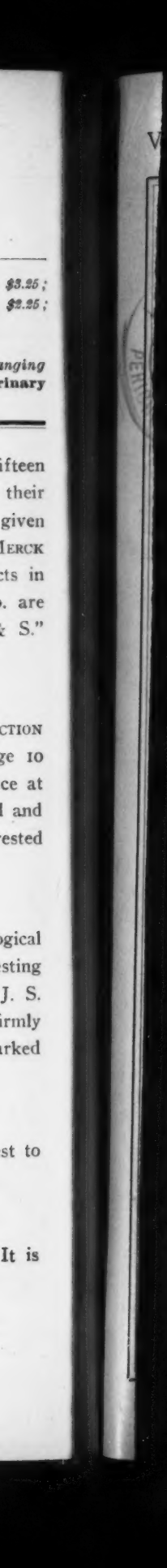
THE GARLAND CONTINUOUS FLOW COMBINATION INJECTION AND SUCTION PUMP, manufactured by SHARP & SMITH, CHICAGO, illustrated on page 10 (adv. dept.) of May issue of REVIEW, is exceptional value for the price at which listed, because of the excellent manner in which it is constructed and the case with which it can be manipulated and cared for. Anyone interested can get full information by writing them.

TYREE'S ANTISEPTIC POWDER. A quantitative, qualitative, bacteriological and clincial analysis of this preparation is embodied in a most interesting little brochure, which will be mailed physicians by the manufacturer, J. S. TYREE, at Washington, D. C., free of cost upon application. We firmly believe that it is not so much what it contains that gives it its marked value, as the way in which the ingredients are combined.

THE upper part of the page opposite, may hold something of interest to REVIEW readers, under the heading, "NOTICE TO VETERINARIANS."

See SCHWARTZ CUTTERS AND EXTRACTORS, adv. on page opposite. It is worth investigating.